

A Survey of the Natural History of major Southampton Ponds

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The **Southampton Wildlife Link** is a voluntary body which meets monthly at the Civic Centre. It consists of representatives from the chief ecological and natural history groups in the area. Those groups are:

English Nature
Southampton Schools Conservation Corps
Southampton Natural History Society
Southampton Commons and Parks Protection Society
Hampshire & IOW Wildlife Trust
Royal Society for the Protection of Birds
British Trust for Ornithology
Broadlands Valley Conservation Group
British Butterfly Conservation Society
Hawthorns Wildlife Association
Sholing Valleys Study Centre Association
Hampshire Bat Group

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A Report on the Natural History of Ponds in Southampton

by

The Southampton Wildlife Link
1994

SOUTHAMPTON POND SURVEY

Produced by the Southampton Wildlife Link

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INTRODUCTION

Although it is often quite small, a pond can be a very rich habitat. Many of its flora and fauna do not occur elsewhere. The number of its animal species alone runs into hundreds, perhaps more than a thousand if microscopic species are included. Representatives of nearly every major group of the animal kingdom may be found in a British pond. Neither a pond, nor a lake should be just a sheet of water; when the water is clear and limpid, the bankside and marginal vegetation varied and prolific, when stands of reeds line the banks and water lilies occupy the surface of the water, not only is the pond's eco-system functioning at its maximum, but the pond is endlessly fascinating and attractive. The plants and animals within a pond comprise an almost self-contained community, the health of the pond depending on the well being of its inhabitants. Oxygenating plants in the water sustain the animal life, but the plants must have sunshine to function, therefore clear water is a priority. Too many nutrients from the dead bodies and excreta of too many fish or a breakdown in the re-cycling systems of the pond, will produce algal blooms in warm weather. These cause the water to become cloudy, shading out the oxygenating plants. Removing water plants, or destroying them with herbicides will reduce the oxygen levels and purity of the water. The message of this survey is that the eco-systems of the lakes and ponds mentioned should be restored, that the spiralling decline of their flora and fauna, should be reversed. Although at one time, ponds were thought of as "fish ponds" and managed as a food source, today, the diversity of the wildlife in and around a pond, justifies its conservation as a habitat in its own right.

The ponds and lakes in Southampton are not "fisheries" as they have been designated by the N.R.A. They are eco-systems in which fish play a part as, for instance, do our native sticklebacks. But large coarse fish in large numbers should not be introduced to encourage over fishing with its attendant problems of weed removal and bank destruction.

The wish is to turn the tide, and with care and understanding give our ponds and lakes a new lease of life.

The following are extracts from the City Council's document, "Nature Conservation Strategy for Southampton". These policies have yet to be implemented as far as the lakes and ponds within the City boundaries are concerned.

"POLICY 3 : CONSULTATION

THE COUNCIL WILL SEEK THE ACTIVE SUPPORT OF LOCAL BUSINESSES, PRIVATE LANDOWNERS, VOLUNTARY CONSERVATION GROUPS, YOUTH GROUPS AND SCHOOLS IN MANAGING, IMPROVING AND CREATING HABITATS FOR WILDLIFE."

"POLICY 3 ; B:NATURE CONSERVATION AND WILDLIFE PROVISION IN THE CITY

To promote nature conservation within Southampton, sites of value must be protected and managed to maintain features of interest."

"POLICY 5 : MANAGEMENT

THE CITY COUNCIL WILL DEVELOP AND IMPLEMENT MANAGEMENT PLANS BASED ON BIOLOGICAL SURVEY DATA FOR OPEN SPACE IN ITS OWNERSHIP, TO HELP MAINTAIN AND INCREASE ITS WILDLIFE VALUE. IT WILL ENCOURAGE AND ASSIST OTHER LANDOWNERS TO DO LIKEWISE."

"POLICY 6: HABITAT CREATION AND DIVERSITY

THE CITY COUNCIL WILL PURSUE A POLICY OF HABITAT CREATION TO INCREASE THE AREA AND DIVERSITY OF WILDLIFE HABITATS WITHIN THE CITY. IN PARTICULAR IT WILL INCREASE THOSE HABITATS WHICH HAVE DECLINED DURING THE DEVELOPMENT OF THE CITY."

Implementation

ii) Where habitats in decline within the City are identified, produce management plans which seek to preserve them."

SHIRLEY POND SU 396143

History

Shirley Pond is situated in a small area of parkland off Warren Avenue, at the southern end of Lordsdale Greenway. The Pond

probably dates back to the Domesday Book when a mill at Shirley is mentioned, which was situated where the garage now stands.

Up until the mid 19th. century the area around the pond, Old Thatched House and the Mill comprised the whole of Shirley, which was a small hamlet completely separate from Southampton.

In 1778, when the tenant of the Mill was a man named Light, two ponds existed. Two more, higher up the Hollybrook, had silted up and were described as osier beds.

In 1963, the pond nearest the Old Thatched House was land-filled by the then Southampton Corporation and the house, (known as The Lakes) positioned between the two ponds was demolished. The existing pond was taken into the ownership of the Corporation.

The Hollybrook runs adjacent to the Pond and an inlet allows water from it to enter the Pond; springs also feed Shirley Pond; in 1976, when drought dried up the Hollybrook, water remained at its usual level in the Pond. The Pond's water overflows back into the Hollybrook at a lower level further down the path.

Very little was done in the way of management of the Pond between 1963 and 1975. In that year, during the "Save the Village Pond" campaign, the Southampton Schools' Conservation Corps, (S.S.S.C.) started work to reverse some of the deterioration that had taken place. This work continued until 1990 with the financial assistance of Southampton City Council (S.C.C.).

Between 1978 and 1989, the S.S.S.C. worked on the Pond and Brook clearing rubbish and raising grants to remove the solid mass

of silt and bulrushes which had obstructed the S.E. corner of the Pond caused by silt entering from the Brook.

The City Council, with the aid of the Manpower Services, re-laid the path and built up the banks. A silt trap was dug adjacent to the Brook and water trickles through it to the Pond, entering on the N. side.

The Pond was surveyed in 1989 by Southern Water (S.W.) (see Appendix A) and though pronounced healthy with good water quality, the silt build-up was recognised as a problem as it took up 2/3rds. of the volume of the Pond.

The accompanying species lists of the survey indicated a good variety of wildlife present in and around the pond.

This survey of 1989 suggested that although the water quality was excellent, during heavy rain it was reduced by the large amount of silt and organic debris entering the Pond from the Brook. This is said to be typical of a stream passing through built-up areas with road and other surface water connections.

The cost of removing the silt in 1989 was prohibitive and difficult, but to avoid further contamination of the Pond with urban debris, the survey suggested it would be wise to ensure that the Pond did not receive run-off during the winter and during flash floods.

In compliance with this suggestion, the City Engineer placed a valve in the inlet from the Brook so that the inflow could be adjusted; the water flow is monitored and adjusted to the weather conditions and needs of the Pond.

The Pond is also cut off from the Brook during periods of pollution, mostly of *E.Coli*, a bacterium which causes illness. This pollution enters the Brook above the Pond inlet (see Geo-Data Extract.Appendix B).

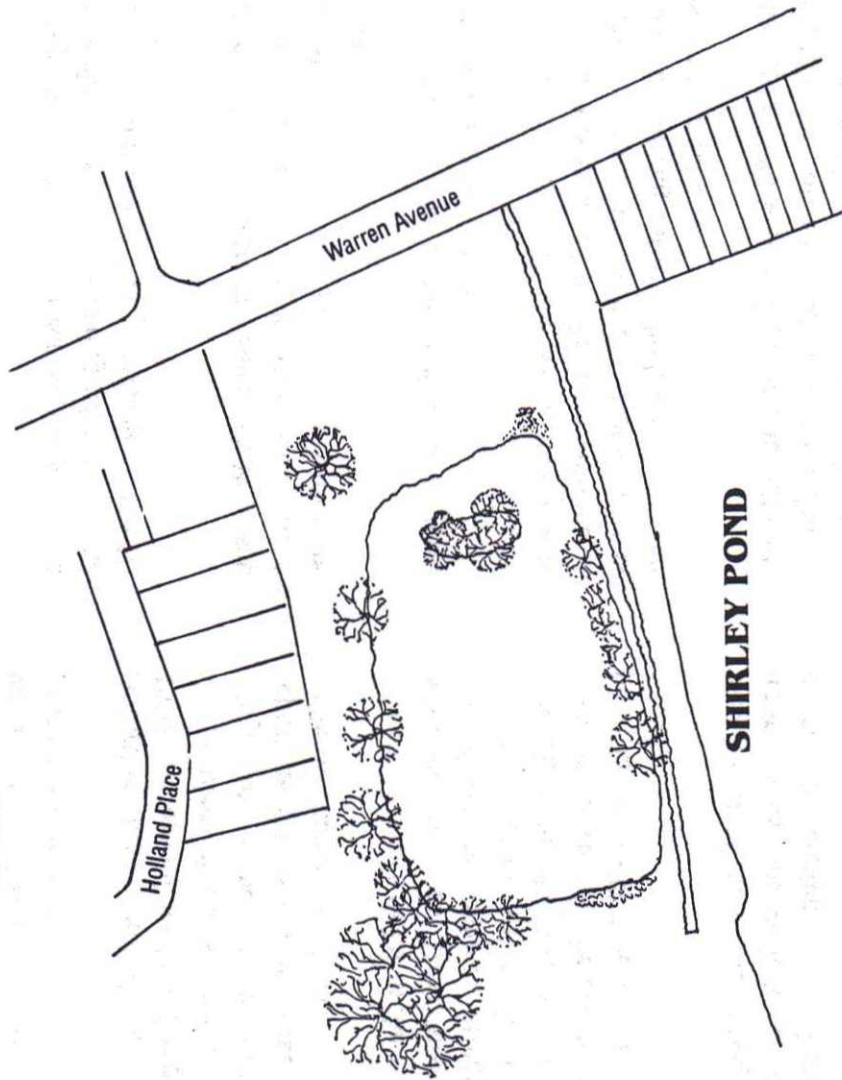
A further survey carried out by Southern Science Ltd. (S.S.L.) in 1992 also pronounced the Pond healthy with good water quality but the problem of the silt remained. This survey gave the depth of water (above the silt) as 0.75 M. whereas the Southern Water report gave it as 0.4 M., suggesting that the control of silt by the valve was having an effect.

The two surveys differ in the reasons for the build up of silt. In the S.S.L.survey, under Discussion 4.3 it is stated that the build up is blamed on the reduced stream flow as a consequence of the positioning of the valve. The S.W.survey (three years before that of S.S.L.), states that the silt was entering the Pond via the Brook. This was obviously the correct deduction borne out by the vast silt build up by 1978 (see above) and silt deposition since 1989,(see above).

The author of the S.S.L. survey based his deductions about the silt upon discussions with local people, consequently, paragraph 4.3 cannot be accepted as being based upon fact.

In October, 1993, S.S.L.carried out a final survey of the Pond for the year. It declared the water quality to be good and made further comments about the silt. The faunal results of this survey showed the invertebrates to be relatively diverse and numerous.

Extracts from S.W. and S.S.L. surveys can be found at the back of this document.



During "Pond Week" in September, 1993, S.W. and the British Trust for Conservation Volunteers (B.T.C.V.) at the behest of Friends of Shirley Valley (F.S.V.), organised the removal of a large quantity of silt as well as bulrushes from the N. corner of the Pond to stop their spread, deepen the water and isolate the island. To accommodate the spoil from this operation, the bankside vegetation was cut down and removed, including a 60 ft. weeping willow tree, leaving the bank side almost totally bare. Unfortunately the bulrushes were removed completely, which has deprived the Pond of a valuable habitat for aquatic life and a nesting site for the swans.

Although trees and appropriate vegetation will be planted, it will take years to recover and the bird life will be adversely affected.

The present status of the Pond

The Pond with its water lilies and surrounding trees is a pleasant, tranquil amenity (albeit somewhat diminished by the recent drag-line operations at the N. end). Its value lies in the pleasant prospect of the variety of plants and their positions adjacent to the water and the wild life attracted to and supported by them.

The problem of the silt remains; it is deep, soft and silky, expensive and difficult to remove by mechanical means. The silt prevents the growth of submerged plants.

It is difficult to know if the silt were to be removed where it could be taken to. Because of health hazards it should be removed to a special site for disposal but this would be very expensive.

Shirley Pond Species List

Plants growing near the Pond i.e. on either side of the surrounding public footpaths, as well as those found in the S.E. corner enclosed by Warren Avenue, Hollybrook stream and the tank traps.

Aegopodium podagraria (Ground-elder)
Achillea millefolium (Yarrow)
Alliaria petiolata (Garlic Mustard)
Anthriscus sylvestris (Cow Parsley)
Artemisia vulgaris (Mugwort)
Arctium minus (Lesser Burdock)
Bellis perennis (Daisy)
Capsella bursa-pastoris (Shepherd's Purse)
Cordamine flexuosa (Wood Bitter-cress)
Cerastium glomeratum (Sticky Mouse-ear)
Chelidonium majus (Great Celandine)
Cirsium arvense (Creeping Thistle)
Cirsium vulgare (Spear Thistle)
Convolvulus arvensis (Field Bindweed)
Crepis versicaria (Beaked Hawk's-beard)
Daucus carota (Wild Carrot)
Geranium dissectum (Cut-leaved Crane's Bill)
Geum urbanum (Wood Avens)
Heracleum sphondylium (Hogweed)
Hyacinthoides non-scriptus (Bluebell)
Hypericum tetrapterum (Square-stalked St. John's-wort)
Hypochoeris radicata (Cat's-ear)
Lamium album (White Dead-nettle)
Lamium purpureum (Red Dead-nettle)
Malva sylvestris (Common Mallow)
Matricaria matricarioides (Pineappleweed)

Medicago lupulina (Black Medick)
Oenothera erythrosepala (Large-flowered Evening-primrose)
Polygonum cuspidatum (Japanese Knotweed)
Ranunculus ficaria (Lesser Celandine)
Ranunculus repens (Creeping Buttercup)
Rubus fruticosus (Bramble)
Rumex obtusifolius (Broad-leaved Dock)
Rumex sanguineus (Wood Dock)
Senecio jacobaea (Common Ragwort)
Senecio squadilus (Oxford Ragwort)
Sisymbrium officinale (Hedge Mustard)
Solanum dulcamara (Bittersweet)
Solidago virgaurea (Goldenrod)
Symphoricarpos rivularis (Snowberry)
Taraxacum officinale (Dandelion)
Trifolium dubium (Lesser Trefoil)
Tripleurospermum maritimum (Scentless Mayweed)
Urtica dioica (Common Nettle)
Veronica persica (Common Field-speedwell)

(All the above were present in 1992)

Trees on or near banks

Acer pseudoplatanus (Sycamore)
Alnus glutinosa (Alder)
Betula pubescens (Downy Birch)
Crataegus monogyna (Hawthorn)
Fraxinus excelsior (Ash)
Ilex aquifolium (Holly)
Prunus avium (Wild Cherry)

Prunus domestica (Wild Plum)
Quercus frainetto (Hungarian Oak)
Quercus robur (Pendunculate Oak)
Salix alba (White Willow)
Salix caprea (Goat Willow)
Salix fragilis (Crack Willow)

Shrub near the banks

Cornus sanguinea (Dogwood)

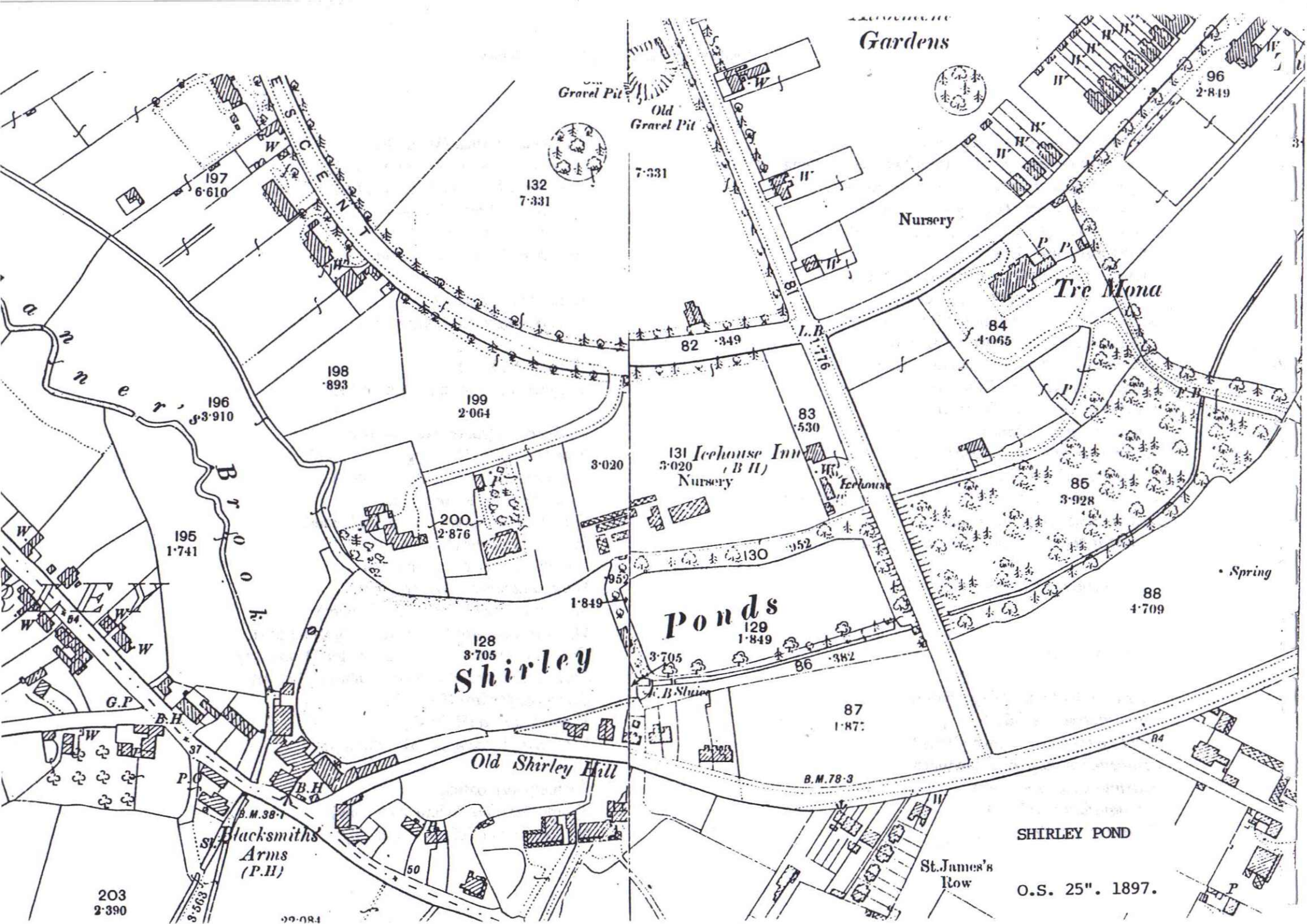
Flora of the Pond

Marginal vegetation present in 1992.

Barbarea vulgaris (Winter-cress)
Bidens cernua (Nodding Bur-marigold)
Carex pendula (Pendulous Sedge)
Carex remota (Remote Sedge)
Epilobium hirsutum (Great Willoherb)
Iris pseudacorus (Yellow Iris)
Lycopus europaeus (Gipsywort)
Mentha aquatica (Water Mint)
Mimulus gattatus (Momkey Flower)
Myosotis scorpioides (Water Forget-me-not)
Oenanthe crocata (Hemlock Water-Dropwort)
Polygonum amphibium (Amphibious Bistort)
Tussilago farfara (Colt's-foot)
Typha latifolia (Bulrush)
Veronica beccabunga (Brooklime)

Submerged/Floating

Nymphaea alba (White Water-lily)
Nuphar lutea (Yellow Water-lilly)



Floating

Lemna minor (Common Duckweed)

Fauna of the Pond

Tricladida (Flatworms)

Oligochaete (true worms)

Daphnia (Water flea)

Asellus Sp. (Water louse)

Gammarus Sp. (Freshwater shrimp)

Corixidae (Water Boatman)

Hydropsychidae (Water Beetle)

Gyrinidae (Whirligig Beetle)

Fish

Three spined Stickleback - very large numbers

Tench - large numbers

Carp - small numbers

Roach - few

Chub - one specimen

Newts were present in 1978.

Birds

Blackbird

Kingfisher

Black cap

Long tailed tit

Black headed gull

Magpie

Blue tit

Mallard

Carrion crow

Mistle thrush

Chaffinch

Moorhen

Chiffchaff

Mute swan

Collared dove

Pied wagtail

Duncock

Redwing

Goldfinch

Robin

Great tit

Song thrush

Greenfinch

Starling

Grey heron

Willow warbler

Grey wagtail

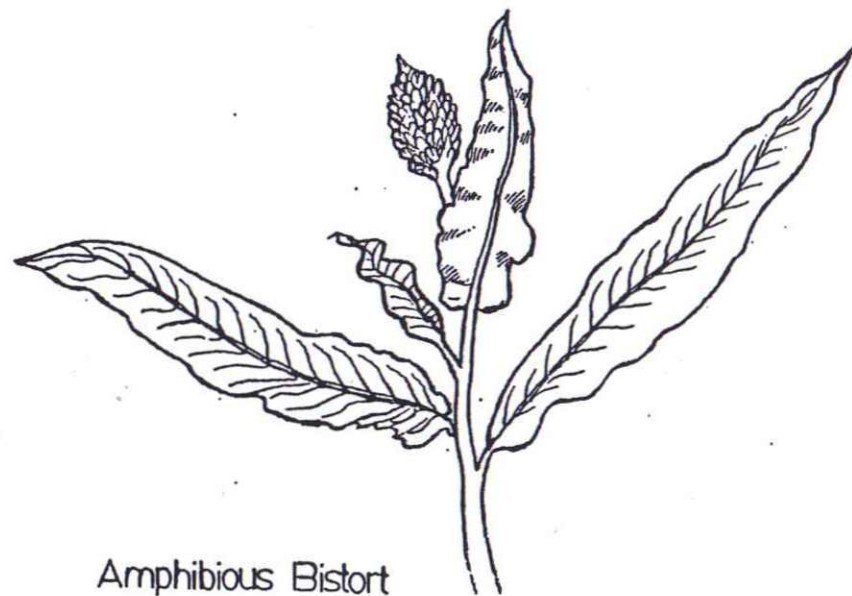
Wood pigeon

House sparrow

Wren

Recommendations

1. The control of water flow into the pond through the valve remains the best means of controlling the entry of silt, organic debris and pollution.
2. The trees contribute to the attractiveness of the Pond and if removal is necessary, they should be replaced with appropriate species.
3. The area of fallen willow and other trees near the stream form a "loafing area" for ducks and it is here that many marginal plants are found. The trees could be trimmed on the Pond side but only lightly and over a period of time.
4. It would be advantageous to restrict fishing to one side of the Pond only and numbers could be controlled by the positioning of bankside vegetation, particularly reeds.
5. The Pond vegetation, bulrushes, water lilies etc., need only the occasional thinning out and only when they become a problem.
6. Continuation of monitoring of nutrient levels and oxygen demand, and the fauna and flora of the Pond.
7. The removal of the silt and the subsequent growth of submerged aquatic vegetation would lead to improvement of the wild life value of the Pond, BUT AS ANY POND WORK SHOULD BE DONE A LITTLE AT A TIME AND OVER A PERIOD OF 4 TO 5 YEARS, it is difficult to see how silt removal could be carried out without serious damage to the environment. It is hoped that the silt will gradually be washed over the sluice and if the entry of silt at the stream entry end is controlled, the problem will diminish.
8. The stream bed needs frequent attention so that obstacles do not build up and obstruct the flow of water, otherwise the Brook floods over the path and carries silt into the Pond during periods of heavy rain.
9. Dogs are constantly present; reminders are needed about their control in public places. Dog bins would be useful. More litter bins are needed and they should be attended to regularly, although the litter is kept well in check by Friends of Shirley Valley's regular litter pick.



Amphibious Bistort

GOLDCREST POND su 393163

History

This name was given to the Pond in 1989 (it being adjacent to Goldcrest Gardens) when the Southampton Schools' Conservation Corps (S.S.C.C.) undertook to remove the silt and fallen trees from the then area of marsh, where there had been a pond before the paths were made.

The Pond is within a Hampshire Heritage Area as the woodland consists of rare sessile oaks; the Pond itself lies in an area of alder carr, surrounded by a rich, herbaceous vegetation.

It is not a pond in the conventional sense as it is really an area of deepened water adjacent to a marsh and so can only be approached from two directions. It was protected by a bramble thicket next to the paths but when the Pond iced over some four winters ago, the bramble thicket was worn away as people took to walking on the ice. There is now a large gap where the brambles were, rubbish tends to be thrown into the water from this space.

The Pond, when free of rubbish and floating wood, is an attractive sight, the water framed by alders, willows and oaks. It is one of the few ponds in Southampton to support submerged and floating pond weeds and these, besides adding to its visual attraction support a variety of aquatic life, including common newts and dragon flies.

The Pond has altered in shape over the years becoming deeper towards the stream and shallower on the S. side. The depth of water varies with the quantity of rain and the time of the year when it falls - in a dry summer, the level may drop appreciably.

The S.S.C.C. has, with the aid of grants, laid cement filled sacks in covered trenches to raise the level of the ground between the Pond and the stream to limit seepage into the stream.

The Pond is cleared of rubbish and fallen branches three to four times a year. The amount of rubbish has decreased of late, particularly since Sainsbury's put a deposit on their trolleys. It has been noted that the dumping of motor cycles and tyres now takes place in another part of the wood.

Plants around the Pond

Alnus glutinosa (Alder)
Lysimachia vulgaris (Yellow Loosestrife)
Oenanthe crocata (Hemlock Water-dropwort)
Quercus petraea (Sessile Oak)
Salix cinerea (Grey Willow)

Pond flora

Elodea nuttallii (Nuttall's Waterweed)
Iris pseudocorus (Yellow Iris)
Potamogeton natans (Pondweed)
Ranunculus omiophyllus (Lenormand's Water-crowfoot)
Sparganium erectum (Branched Bur-reed)

Pond fauna

Common newts and fish are present in the Pond, including stickleback.

Ceragrion tenellum (Small Red Damselfly) ← ? water!

Coenagrion Sp. (Blue Damselfly)

Aeshna cyanea (Southern Hawker)

Aeshna juncea (Common Hawker)

Anax imperator (Emperor)

Libellula depressa (Broad-bodied Chaser)

Recommendations

1. Regular monitoring of flora and fauna.
2. Regular rubbish removal (at present undertaken by the S.S.C.C.).
3. Repair of the S. bank and the replanting of brambles.
4. No fish stocks to be added.
5. supports nesting birds in spring

CROMARTY POND

SU 383162

History

Cromarty Pond is thus named because it is adjacent to Cromarty Road - it doesn't seem to have acquired a name of its own. It appears on the 25 inch map of 1857 as a fish pond. On this map, it is well screened with trees to the south, but the northern bank has none; the island is drawn as being in the same place as it is today.

The land surrounding the Pond, and the Pond itself, were purchased by the City Council in 1964 from the Barker Mills Estates. The Estate Office confirms that their ownership goes back to the Tythe Apportionment Map of 1837, so the Pond has hardly changed in the past 160 years.

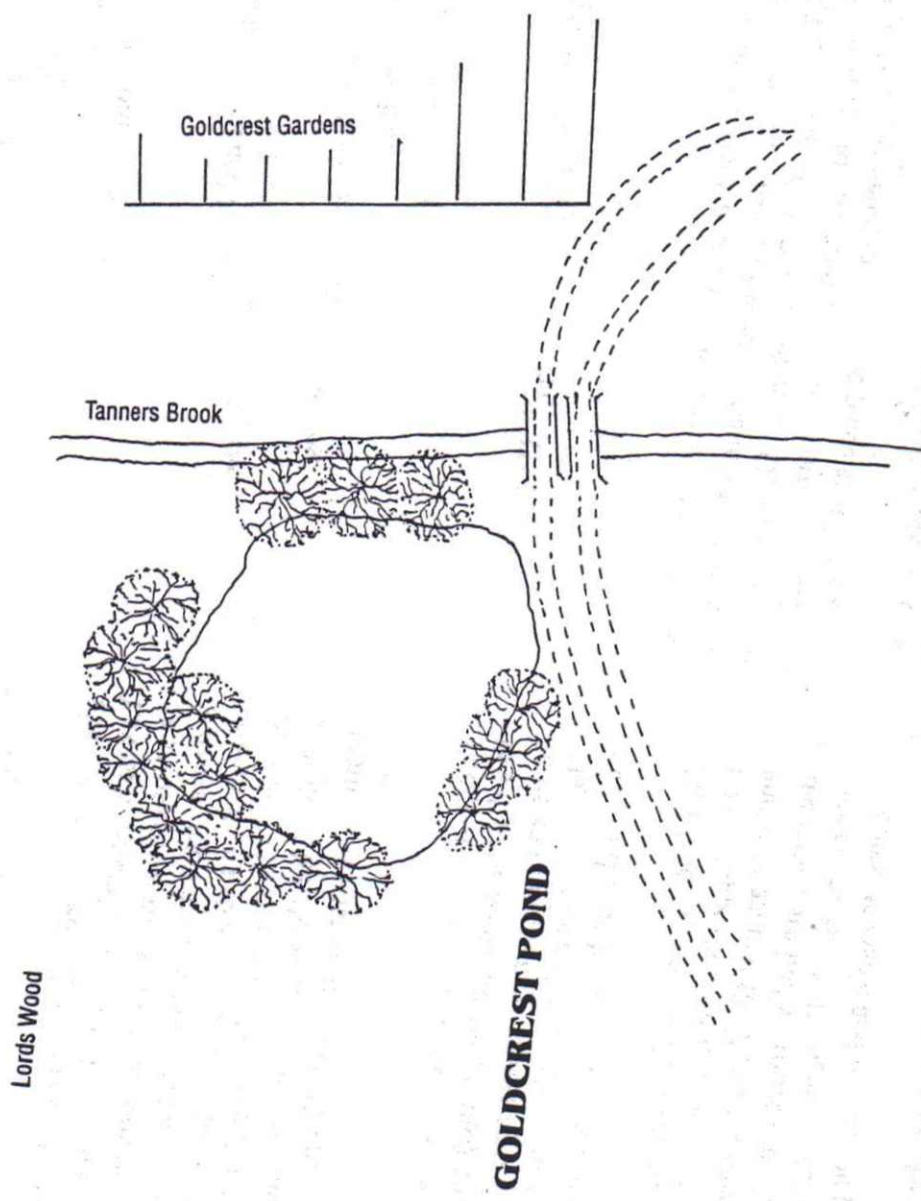
The Pond is in a visually attractive, open space, surrounded by trees with an adjacent marshy area. Grassy meadows are to the E. and N. as far as Baker's Drove. Large oaks adjoin the path and are also found in the grassy area.

The Pond, situated off Cromarty Road is fed by a stream from Lakeside Avenue Pond (in Test Valley). This feeder stream begins as an overflow from Lakeside Avenue Pond and runs down through a dense vegetation of brambles and willow to Cromarty Pond. The stream flows steadily but only provides a trickle of water most of the time. The overflow from the Pond exits on the S.W. corner into a drain. The Pond has silted up and is now rather shallow. The depth is estimated at some 20 cms. at the edges and 1 M. at the centre.

Toogood's, the seed merchants (who had a factory in Millbrook Road until some 20 years ago) used the meadow for grass seed trials and thus, many interesting native species of plant grow nearby. The trees, especially the Oak and Horse Chestnut, give a very rural look to the landscape. There are many seedling trees present.

An island, a few yards from the banks on the eastern side of the Pond, supports several trees and scrubby undergrowth. The banks and path around the Pond are clear and accessible (although 50% of the banks are badly eroded) for 3/4 of the way around. However, a stretch of the N.E. bank is covered in *Rhododendron* which has become invasive and blocks the path.

The water, between the northern bank and the island, which does not receive a direct flow from the stream, is silted up and stagnant.



On the S.W. side of the island is an important stand of bulrush and reeds which supports nesting birds in spring.

Children build bridges with rubbish and supermarket trolleys on the northern side of the Pond in order to reach the island. This rubbish is regularly removed but reappears just as regularly. Some banks are very bare due to trampling.

CROMARTY POND (and surrounding grassy areas)

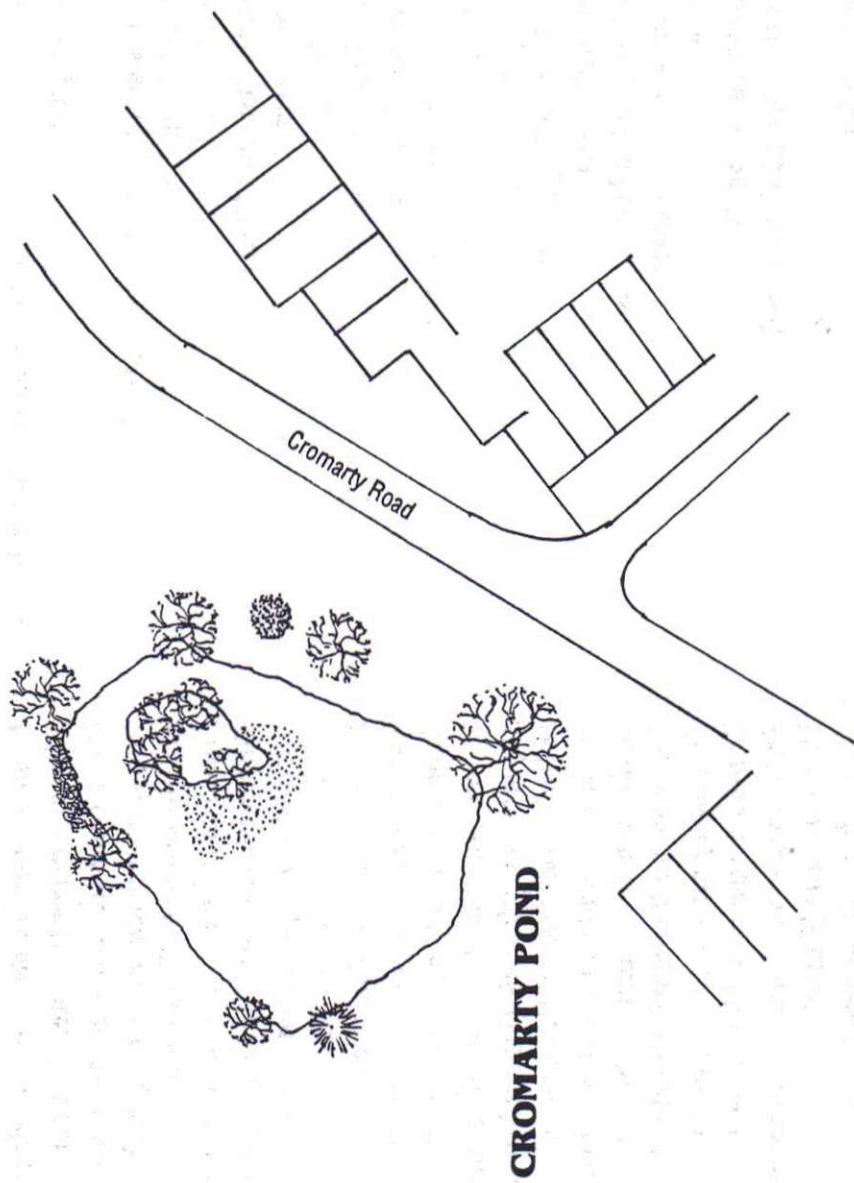
Plant surveys - 1989, 1990 and 1993.

Achillea millefolium (Yarrow)
Aegopodium podagraria (Ground Elder)
Agrostis canina (Brown Bent)
Allium vineale (Wild Onion)
Alopecurus pratensis (Meadow Foxtail)
Calystegia sepium (Hedge Bindweed)
Capsella bursa-pastoris (Shepherd's Purse)
Centaurea nigra (Common Knapweed)
Cirsium arvense (Creeping Thistle)
Cynosurus cristatus (Crested Dog's-tail)
Dactylis glomerata (Cock's Foot)
Deschampsia caespitosa (Tufted Hair-grass)
Deschampsia flexuosa (Wavy Hair-grass)
Festuca rubra (Red Fescue)
Filipendula ulmaria (Meadowsweet)
Geranium dissectum (Cut-leaved Crane's-bill)
Hedera helix (Ivy)
Holcus lanatus (Yorkshire-fog)
Heracleum sphondylium (Hogweed)
Hypochoeris radicata (Cat's-ear)
Lathyrus pratensis (Meadow Vetchling)
Leontodon autumnalis (Autumn Hawkbit)

Lolium perenne (Perennial Rye-grass)
Lotus corniculatus (Common Bird's-foot-trefoil)
Lotus uliginosus (Greater Bird's-foot-trefoil)
Lychnis flos-cuculi (Ragged Robin)
Ononis repens (Common Restharrow)
Plantago lanceolata (Ribwort Plantain)
Plantago major (Greater Plantain)
Poa trivialis (Rough Meadow-grass)
Polygonum aviculare (Knotgrass)
Potentilla erecta (Tormentil)
Pulicaria dysenterica (Common Fleabane)
Ranunculus repens (Creeping Buttercup)
Rhododendron ponticum (Rhododendron)
Rosa canina (Dog Rose)
Rubus fruticosus (Bramble)
Rumex sanguineus (Wood Dock)
Rumex acetosa (Common Sorrel)
Senecio jacobea (Common Ragwort)
Sisymbrium officinale (Hedge Mustard)
Solanum dulcamara (Bittersweet)
Stellaria graminea (Lesser Stitchwort)
Stellaria media (Common Stitchwort)
Taraxacum officinale (Dandelion)
Trifolium pratense (Red Clover)
Trifolium repens (White Clover)
Tripleurospermum maritimum (Scentless Mayweed)
Ulex europaeus (Gorse)
Urtica dioica (Common Nettle)

Trees

Acer pseudoplatanus (Sycamore)



Aesculus hippocastanum (Horse Chestnut)

- 2 mature trees by S.W. corner of Pond. Several in the area.

Betula pendula (Silver Birch)

- approx. 10 mature, tall trees on W. side of Pond.

Carpinus betulus (Hornbeam)

Corylus avellana (Hazel) - a small tree.

Crataegus monogyna (Hawthorn)

Fagus sylvatica (Beech)

Fraxinus excelsior (Ash)

Ilex aquifolium (Holly)

- a number in nearby hedges and on W. side of Pond.

Pinus sylvestris (Scot's Pine)

- 5+1 dead mature trees near hedge to Baker's Drove.

Quercus cerris (Turkey Oak)

Quercus robur (Pedunculate Oak)

Salix caprea (Sallow) - on the island.

Salix fragilis (Crack Willow) - on the island.

Taxus baccata (Yew)

Tilia platyphyllos (Large-leaved Lime)

Ulmus procera (Elm) - small tree in hedge.

Pond Flora

Marginals and marsh plants

Apium nodiflorum (Fool's Watercress)

Bidens cernua (Nodding Bur-marigold)

Cardamine flexuosa (Wavy Bitter-cress)

Carex remota (Remote Sedge)

Carex Sp.

Epilobium hirsutum (Great Willowherb)

Juncus articulatus (Jointed Rush)

Juncus conglomeratus/*J. subuliflorus* (Compact Rush)

Juncus effusus (Soft Rush)

Oenanthe crocata (Hemlock Water-dropwort)

Polygonum amphibium (Amphibious Bistort)

Polygonum hydropiper (Water-pepper)

Polygonum lapathifolium (Pole Persicaria)

Ranunculus peltatus (Water-crowfoot)

Veronica beccabunga (Brooklime)

Emergent Plants

Iris pseudocorus (Yellow Iris)

Typha latifolia (Common Reedmace (Bulrush))

Floating

Lemna minor (Common Duckweed)

Birds recorded between Spring 1990 and Spring 1993

Pond

Black headed gull - max. seen at any one time 5

Mallard - max. seen at any one time 4

Moorhen - max. seen at any one time 2

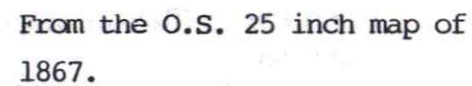
Area surrounding Pond including hedges, trees and rough grass.

Blackbird

House sparrow

Blackcap

Long-tailed tit



Blue tit
Magpie
Carrion crow
Mallard
Chaffinch
Robin
Chiffchaff
Song thrush
Goldfinch
Starling
Great tit
Willow warbler
Greenfinch
Wood pigeon
House martin
Wren

Adjacent Recreation Ground

Blackbird
Greenfinch
Black headed gull
Mistle thrush
Blue tit
Robin
Carrion crow
Starling
Chaffinch
Wood pigeon

Fungi

Collybia butyracea (Greasy Club Foot)
Trametes (Jelly fungus)
Stropharia semiglobata (Verdigris Agaric)
Coptinus micaceus
Agaricus campestris (Field Mushroom)
Tomes Sp. (Bracket Fungus)

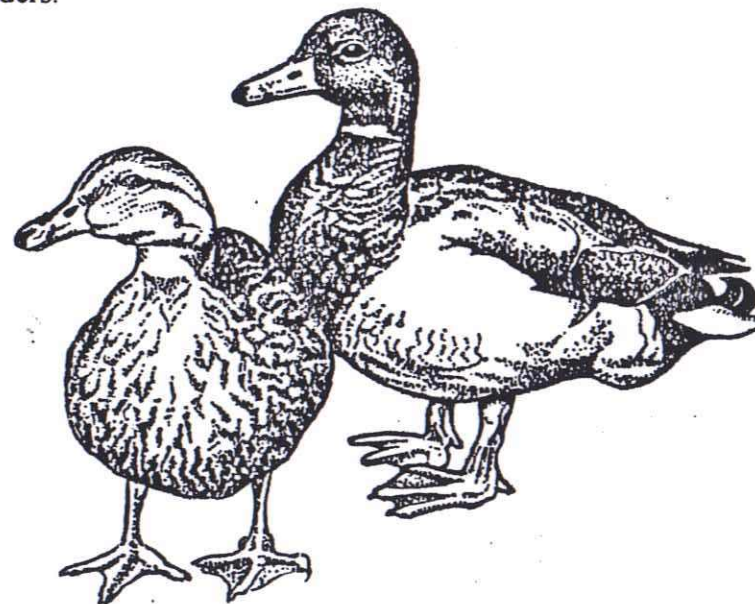
Fauna

Not a lot of surveying has been done and more is needed.

The Pond supports frogs and fish such as, Rudd, Roach, Tench, Bleak and Carp. Pond Skaters and Mosquitoes are present.

Invertebrates

Large White, Speckled Wood and Small Copper butterflies have been seen; *Conocephalus discolor* (Long-winged Conehead) and garden spiders.



Recommendations

1. The stream needs to run through a silt trap into the Pond; it should be constructed where the stream enters. This would have the added advantage of spanning the gap between the two sides of the path.
2. Silt needs to be removed from around the island on the N. end, and from the middle of the Pond.
3. The island could be made smaller by removing trees and soil from the N.E. side. This would prevent the endless accumulation of rubbish.
4. Some trees near the Pond need trimming, and the Rhododendron should be cleared from the bank.
5. Litter bins and information boards should be placed on the S. side of the Pond. A "No Tipping" notice is badly needed.
6. Information leaflets could be produced.
7. Regular monitoring of the flora and fauna is desirable.

MANSBRIDGE RESERVOIR SU 447158

History

The Reservoir is brick lined and edged with brick. It was constructed in 1820 when Southampton Corporation built a pumping station there to provide a fresh water supply to the town; the Reservoir was used as a settling pond and ceased to be used for this purpose in 1880.

Trees and shrubby vegetation occur at intervals around the edge of the Reservoir providing "bays" for fishing; there are about 20 of them, which have vegetation on either side.

The Reservoir is brick edged and the water is shallow at the margin but deepens quite quickly towards the middle where it reaches a depth of about 1 M. Pond marginal plants are found in the shallows at the edges of the bays.

The Reservoir is well endowed with aquatic plants the most prolific being Mares-tail which has to be controlled in late summer. Yellow Water-lily covers about a quarter of the water's surface and in warm weather there may be algal blooms due to the stillness and shallowness of the water, these tend to die away of their own accord.

Other aquatic species present such as Ivy-leaved Duckweed, Milfoil, Hornwort and Elodea thrive in the clear water. They are not found in other Southampton ponds where suspended silt is the problem.

The small island is thick with trees and edged with pond marginals such as Willowherb and Iris; swans nest there. Although it is accessible, particularly when the water level is low, wildfowl do not seem unduly disturbed by human presence but, it would be better if it were isolated by deepening the channel between it and the bank to ensure privacy for the wildfowl.

An oily scum was seen on the water in the S.W. corner and had soiled the swan's feathers on 12:11:93.

Litter and vandalism are problems - the former is scattered around the Reservoir and the pic-nic tables have been vandalised. All the notices have disappeared.

The banks are eroded on the southern side of the Reservoir where fishing is always taking place. Some weed is removed by fishermen in the summer and left on the banks. The Reservoir is situated in a very pleasant spot near the water meadows and with a grassy field nearby.

Flora of the Reservoir (aquatic and bankside).

Achillea millefolium (Yarrow)
Alisma plantago-aquatica (Water Plantain)
Aster Sp.
Callistriche stagnalis ((Water Starwort)
Carex pendula (Pendulous Sedge)
Ceratophyllum submersum (Soft Hornwort)
Clematis vitalba (Traveller's Joy)
Elodea canadensis (Canadian Pondweed)
Epilobium hirsutum (Great Willowherb)
Epilobium palustre (Marsh Willowherb)
Eupatorium cannabinum (Hemp Agrimony)
Equisetum palustre (Marsh Horsetail)
Geranium robertianum (Herb Robert)
Glyceria maxima (Reed Sweet-grass)
Hedera helix (Ivy)
Hippuris vulgaris (Mare's Tail)
Hypericum perforatum (St. John's Wort)
Inula conyza (Ploughman's Spikenard)
Iris pseudocorus (Yellow Iris)

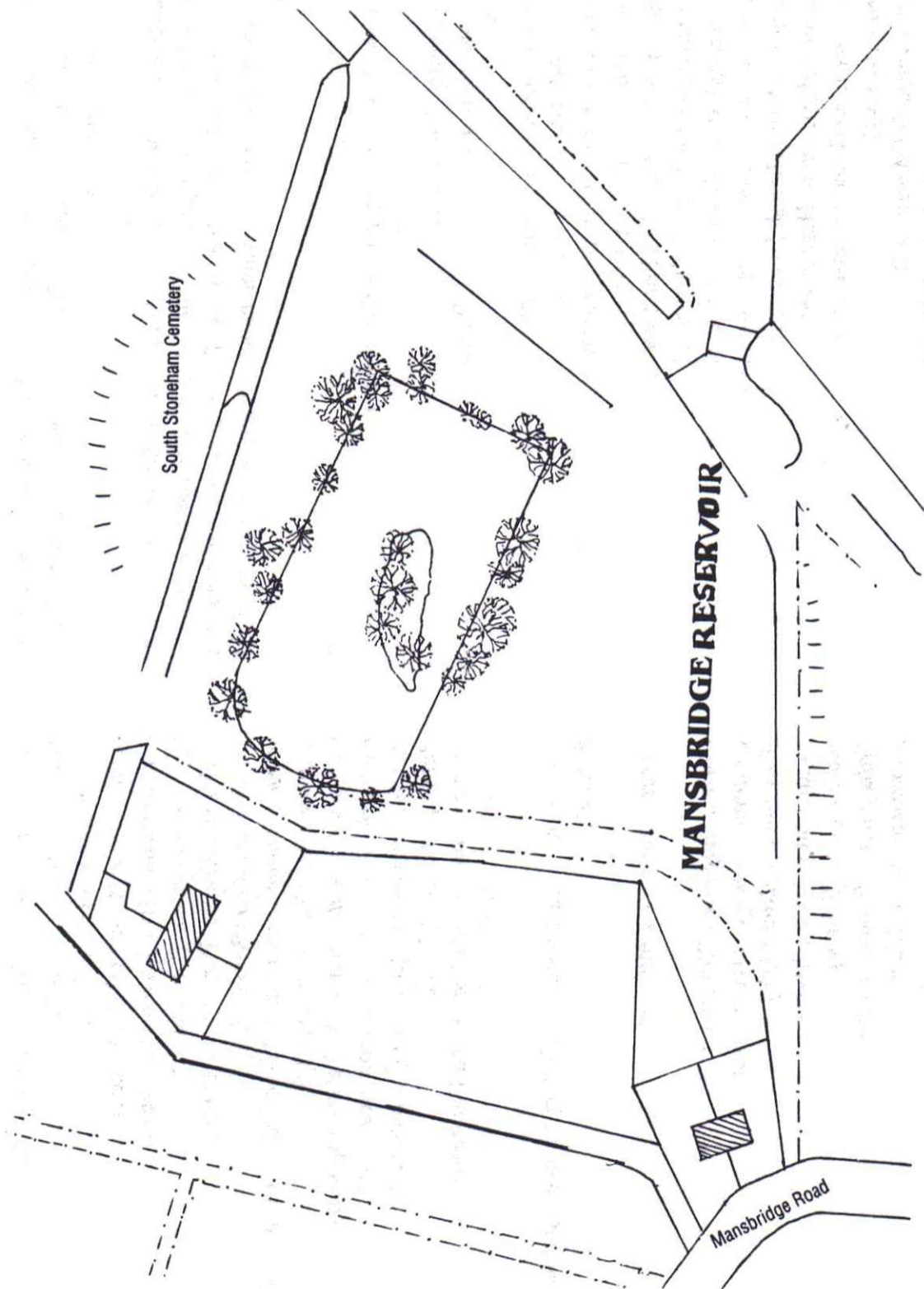
Juncus acutiformis (Sharp-flowered Rush)
Juncus effusus (Soft Rush)
Juncus inflexus (Hard Rush)
Lemna minor (Common Duckweed)
Lemna trisulca (Ivy-leaved Duckweed)
Lycopus europaeus (Gipsywort)
Lythrum salicaria (Purple Loosestrife)
Mentha aquatica (Water Mint)
Myrio phyllum verticillatum (Whorled Water-milfoil)
Nuphar lutea (Yellow Water-lily)
Oenanthe crocata (Hemlock Water-dropwort)
Pulicaria dysenterica (Common Flea-bane)
Rorripa nasturium aquaticum (Water-cress)
Rubus fruticosus (Bramble)
Sparganium erectum (Branched Bur-reed)
Symphytum officinale (Comfrey)

Also various grass species including *Fescue gigantea* (Giant Fescue).

Trees around the Reservoir

Cornus sanguinea (Dogwood)
Crataegus monogyna (Hawthorn)
Fraxinus excelsior (Ash)
Ligustrum vulgare (Privet)
Salix caprea (Sallow)
Salix fragilis (Crack Willow)
Sambucus nigra (Elder)

A fungus, Dryads Saddle was seen on the trunk of an ash.



Fauna of the Reservoir

Little surveying has been done up until now, consequently, it is impossible to give an accurate evaluation of insect records as yet. Some daphnia (water fleas) have been seen in the water, also pond skaters and mosquitos. A pair of swans with two cygnets inhabit the Reservoir, mallards and moorhens are also present. A family group of greenfinches was seen and a wren was noted.

The following plants were noted in a survey conducted by the Hampshire Wildlife Trust in 1982.

| | |
|---------------------------------|---------------------------|
| <i>Alisma plantago-aquatica</i> | (Water Plantain) |
| <i>Barbarea vulgaris</i> | (Winter-cress) |
| <i>Cardamine pratensis</i> | (Cuckoo flower) |
| <i>Carex pendula</i> | (Pendulous sedge) |
| <i>Festuca gigantea</i> | (Giant fescue) |
| <i>Petasites hybridus</i> | (Butterbur) |
| <i>Potamogeton trichoides</i> | (Hairlike Pondweed) |
| <i>Ranunculus sceleratus</i> | (Celery-leaved Buttercup) |
| <i>Senecio aquaticus</i> | (Marsh Ragwort) |
| <i>Sparganium Sp.</i> | (Bur-reed) |

Mansbridge Reservoir
Southampton Natural History Society Records
Pond dipping 8th. August 1979.

Freshwater Winkle (*Viviparus Sp.*)
Cyclops (*Cyclops strenous*)
Water Flea (*Daphnia Sp.*)
Seed Shrimps
Red Mite (*Hydrachna globosa*)

Mayfly nymph (*Ephemera danica*)
Water Stick Insect (*Ranatra linearis*)
Water Scorpion (*Nepa cinerea*)
Pond Skater (*Gerris Sp.*)
Water Boatman (*Corixa Sp.*)
Caddis Fly larvae Species unknown
Water Beetle (*Hyphydrus ovatus*)
Blue-tailed Damselfly (*Ischnura elegans*)
Common Blue Damselfly (*Enallagma cyathigerum*)
Saucer Bug (*Ilyocoris cimicoides*)

Backswimmer (*Notonecta glauca*)

Personal Records for Mansbridge Reservoir from 1979 onwards
Philip Budd

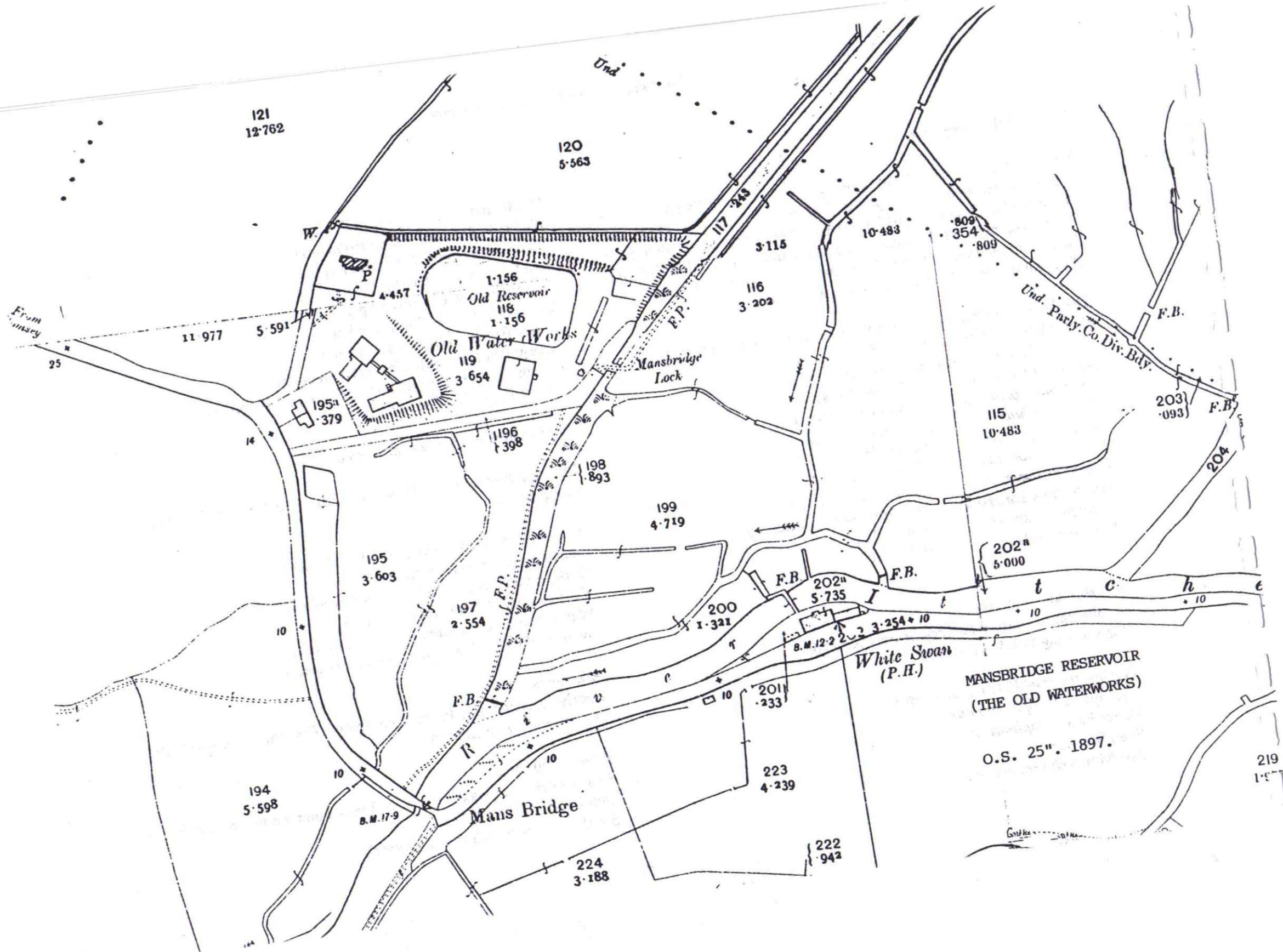
Molluscs found in the vicinity of the Reservoir
Marsh Snail (*Succinea pidris*)
Dark-lipped Hedge Snail (*Cepaea nemoralis*)
Kentish Snail (*Monocha carriana*)
Wandering Snail (*Limnaea peregra*) in the
Swan Mussel (*Anodonta cygnaea*) Reservoir

Arachnids

Poorly recorded only Purse Web Spider (*Pisaura mirabilis*) found in surrounding vegetation

Insects (Odonata)

Red Darter (*Sympetrum striolatum*) very common and flies as late as October.
Southern Hawker (*Aeshna cyanea*)



Emperor Dragonfly (*Anax imperator*)
Broad-bodied Chaser (*Libellula depressa*)
Blue-tailed Damselfly (*Ischnura elegans*)
Common Blue Damselfly (*Enallagma cyathigerum*)
Large Red Damselfly (*Pyrrosoma nymphula*)
Banded Agrion (*Calopteryx splendens*)

Orthoptera

In the grassy and bushy areas around the Reservoir may be found:-

Dark Bush Cricket (*Phelidoptera griseoptera*)
Long-winged Conehead (*Conocephalus discolor*)
as well as Great Green Bush Cricket, Common Green
Grasshopper and Meadow Grasshopper

Hemiptera

Not well stocked, the three species recorded are:-

Hawthorn Shield Bug (*Acanthosoma haemorrhoidale*)
The Shield Bug (*Picromerus bidens*)
Ant Damsel Bug (*Aptus mirmicoides*) recorded 3.8.83

Mecoptera

Scorpion Fly (*Panorpa* Sp.) is quite abundant

Lepidoptera

No unusual butterflies here. Species most likely to be found in the area include the following 19 varieties:-

Meadow Brown
Holly Blue
Gatekeeper
Small Copper
Speckled Wood
Small White

Small Heath
Large White
Marbled White
Green-veined White
Peacock
Brimstone
Tortoiseshell
Orange Tip
Comma
Small Skipper
Red Admiral
Large Skipper
Common Blue

Wall Brown (seen 8.8.83. May have died out)

Migrant Clouded Yellow and Painted Lady occasionally seen
(Clouded Yellow 3.8.83. Painted Lady 10.7.84.)

Two aquatic moths associated with the Reservoir, the Common China Mark and the Ringed China Mark may be seen. Day flying species such as the Cinnabar, Scarlet Tiger, Burnet Moths and *Pyrausta aurata* can be seen in the summer, the latter is often attracted to Water Mint blooms. The Common Wave Moth has been recorded as have the early larvae of Drinker and Knotgrass Moths.

Trichoptera

The Large Caddis Fly (*Phryganea grandis*)
sited on 18.5.85.

Diptera

The area is rich in flies. Species so far recorded are :-

Crane Fly (*Tipula maxima*)
St. Mark's Fly (*Bibio marci*)
Snipe Fly (*Rhagio scolopacea*)

Bee Hoverfly (*Volucella bombylans*)
 Drone Fly (*Eristalis tenax*)
 Thick-headed fly (*Conops quadrifasciata*)
 Blue Bottle (*Calliphora vomitoria*)
 Green Bottle (*Lucilia caesar*)
Mesembrina meridiana
 Yellow Dung Fly (*Scatophago stercorarium*)

Hymenoptera

Not well studied. A variety of species of Bumble Bee, Carder Bee, Burrowing Bee and Digger Wasps have been sighted.

Various Gall Wasps also occur including:-
 Robin's Pin-cushion Gall (*Diplolepis rosae*)
 Rose Pea Gall (*D. elegans*)
 Knopper Gall (*Andricus quercus-calcis*)

Coleoptera

The area of the Reservoir is rich in flower beetles, soldier beetles, leaf beetles, rove beetles, click beetles and weevils. Some easily recognisable species definitely known to occur include :-
 Lesser Stag Beetle (*Dorcus parallelipipedus*)
 Red Soldier Beetle (*Rhagonycha fulva*)
 Sailor Beetle (*Cantharis fusca*)
 Soldier Beetle (*Cantharis livida*)
 Red-tipped Flower Beetle (*Malichius bipustulatus*)
 Seven-spot Ladybird (*Coccinella 7-punctata*)
 Two-spot Ladybird (*Adalia bipunctata*)
 22-spot Ladybird (*Thea 22-punctata*)
 Wasp Beetle (*Clytus arietis*)
 Green Nettle Weevil (*Phyllobius urticae*)

Pisces

Not recorded

Amphibia

Common Frogs spawn regularly in the Reservoir or, at least, frog's spawn regularly occurs there. Common Toads were seen in the Reservoir (5.4.85) and soon afterwards, spawn was laid. No data on newts.

Reptilia

None recorded but Slow-Worms and Grass Snakes are likely to occur there.

Aves

At least 56 species seen in the vicinity of the Reservoir. Mute Swans and Moorhens breed on the Reservoir. In the summer, various warblers can be seen and heard including:-

Chiffchaff
 Whitethroat
 Willow Warbler
 Lesser Whitethroat
 Garden Warbler
 Reed Warbler
 Blackcap
 Sedge Warbler
 mostly in the surrounding scrub.
 Other summer regulars include:-
 House Martin
 Swallow
 Cuckoo

A Nightingale was seen and heard on 12.7.92.

In winter Fieldfares, Redwings and Redpolls may be seen. Sparrowhawks, Kestrels and Green Woodpeckers are frequent. Pied Wagtails, Tree Creepers, Great Spotted Woodpeckers and Reed Buntings are also present in the area. Herons and Cormorants occasionally appear as do Kingfishers (seen on 12.7.92). Jays, Jackdaws, Bullfinches and many other common birds have also been seen. A very occasional migrant visitor is the Osprey.

Mammalia

All the shrew species have been seen in the area, including the elusive Water Shrew in the Reservoir. Water Voles however, are only usually seen near the River.

Bats, including Long-eared Bats are quite numerous in the area.

There is a Rabbit population in the scrub to the east of the Reservoir.

Foxes and Roe Deer also occur in the area. There is no shortage of Moles in the nearby meadows.

Recommendations

1. Removal of the vandalised pic-nic tables.
 2. The brickwork on the eastern side should be repaired.
 3. Adequate litter bins should be provided and emptied regularly.
 4. Some education required for users of the Reservoir and its surrounds.
 5. Regular monitoring of the wildlife.
- The annual removal of the Mare's-tail seems an adequate measure.
 - The source of the oily scum should be investigated.

THE ORNAMENTAL LAKE, THE COMMON SU 414146

History

The creation of the Ornamental Lake was begun in 1888 by the unemployed, financed by a Relief Fund Committee, during a depression. Two years later, the Lake was unfinished and the Council contracted the work out and brought the Lake to a reasonably finished state. The shape was altered many times until 1933 when it became what it is now.

The Ornamental Lake was originally reserved for quiet recreation with swans and other wildlife as attractive features. The banks supported rushes, sedges and other marginal plants and a feature was the large stand of water-lilies in its centre. There are three inlet streams and an outlet.

The Lake supported a large and varied invertebrate population including 14 species of dragonfly. Large numbers of frogs and toads used it for breeding.

Very little fishing took place until quite recently. The Lake was cleared of silt in the 1970's and again in 1982/83. The 1982 dredging was drastic in as much as all the silt and vegetation were entirely removed down to the gravel bottom, and placed on land to the S. of the Lake, thereby affecting both habitats quite severely. Since 1982/83, the water has remained turbid, aquatic vegetation has not re-established and numbers of invertebrate species have

been low with some disappearing altogether (including dragonflies). Frog and toad populations have plummeted.

Fish stocks are thriving however, the Lake supporting 8 species; Common carp, Crucian carp, Mirror carp, Goldfish, Perch, Roach, Rudd and Tench.

The number of anglers fishing the Lake has increased enormously in the past 5 years with up to 110+ rods being present on a summer's day. Many fishermen bring a quantity of equipment with them and some remain all night, lighting fires and leaving rubbish and excreta in the bushes.

The reason for the excessive fishing is the vast number of fish. The Lake is regarded as a "fishery" by the National Rivers Authority (N.R.A.). It has recommended that some fish should be removed, but not too great a number, perhaps 1500, as one of the benefits of this "fishery" is the large number of fish which means that anyone, particularly children can easily catch them.

The removal is suggested, because the high density of fish (thousands were caught in one sweep of a 90 M. sein net), is affecting their health and growth particularly as there is no predator present. (The Common Fish Survey of the Ornamental Lake by the N.R.A. 1993 can be seen at the Hawthorns Urban Wildlife Centre).

The most damaging aspect of the high density of fish is the upsetting of the ecological balance of the Lake, which has led to its reduction from a rich wildlife habitat to a much poorer one.

The cycle of depletion begins with the turbidity of the water. This can be caused by algae or inorganic sediments in suspension; the

latter is due to the activities of the dense fish population, particularly carp. Algal growth can be caused by the release of phosphorous from the bodies of dead fish and from excreta.

Regeneration of the aquatic vegetation is hindered by the high turbidity which shades out the submerged plants. Aquatic vegetation has not regenerated in the Lake and even newly planted waterweed has been unable to establish itself owing to the turbidity and the uprooting of plants.

These two factors, turbidity and the lack of aquatic plants has led to a dearth of invertebrates and amphibia.

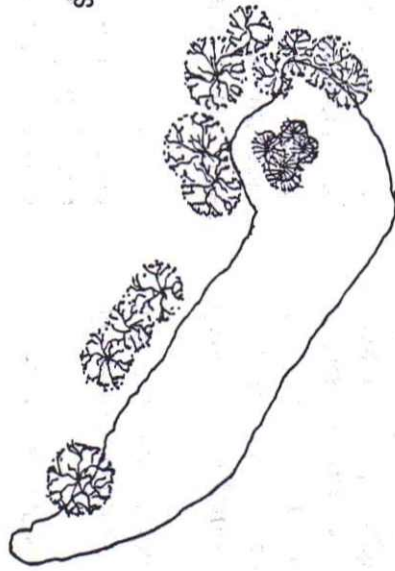
Bankside vegetation has been severely trampled by anglers on the N. side except where chestnut fencing has been erected to enclose the banks from both the land and water sides. The laying of granite blocks on the S. side has removed marginal and bank side vegetation, although some rushes are being encouraged to grow between the blocks. Other activities such as mountain bike riding and cross-country running also puts pressure on the plants surrounding the Lake.

Flora and fauna of the Lake

Some emergent Bur-reed has established well next to the island and a stand of iris is situated at one corner of it. Some rushes are found in the N.E. corner with some marginals, such as Water Mint and Gipsywort here and there. A few reeds and rushes are establishing themselves between the granite blocks.

Mallards and moorhens usually inhabit the Lake and breed amongst the irises.

Southampton Common



ORNAMENTAL LAKE

Bats

Areas of water are very important for bats, as they feed on insects rising in the air above the surface. These are insects which spend their larval stage in the water and their adult stage in the air.

The Hampshire Bat Group (H.B.G.) has stationed bat boxes at Mansbridge Reservoir, Shirley Pond and Miller's Pond to encourage roosting. Long-eared and Pipistrelle bats are known to visit Mansbridge Reservoir and Miller's Pond, and Serotines visit Shirley Pond. Noctule and Pipistrelle feed above the Ornamental Lake but bat boxes have not been stationed there as there are plenty of nooks and crannies which provide natural roosts.

The improvement of habitats which will encourage bats is essential. Improving the water quality of ponds and lakes will lead to an increase in the insects associated with them which, in turn, greatly benefit the bats.

Recommendations

1. To restore the Lake to an amenity that all can enjoy and to restore its value as a wildlife haven, a balance must be found between the interests of the anglers and the improvement of both water and banks.
2. The number of anglers must be reduced, this could be done with timed tickets and proper supervision.
3. A considerable reduction in fish numbers is needed to reduce the turbidity and encourage the re-establishment of aquatic vegetation and invertebrates. The N.R.A. suggests that 1500 fish should be removed which seems far too small a number.

They also say that perch should be introduced to predate on small fish.

4. The overall density of fish and their waste products has to be considered in order to arrive at a correct balance of ecological stability.
5. Appropriate fish species and their behaviour need to be considered. In other parts of the country it has been found that a reduction in roach leads to a larger population of Daphnia (Water fleas) which help to clear turbid water of algae. Bottom feeding fish stir up sediments, fewer of these would also reduce turbidity. (In fact, it has been found that fish removal succeeded in promoting clear water and the return of aquatic plant communities; this was greatly appreciated by invertebrates and waterfowl (British Wildlife Vol.4 No.2. 1992).
6. Marginal plants could be encouraged to establish themselves at both ends of the Lake leaving the gravel path area for anglers who could be regulated by "bays", created by reed planting along the water's edge.
7. The banks on the northern side of the Lake need to be isolated with chestnut fencing to prevent access, allowing them to recover.
8. Some form of barrier is required to stop mountain bikes using the northern banks.
9. Water-lilies should be reintroduced into the Lake, not only because they would add to the visual amenity value, but because they would encourage invertebrates and help to prevent algal growth. The N.R.A. suggests an area for Water lilies to the N. of the Lake by the submerged fencing but there is no reason why more stands should not be planted elsewhere in the Lake.

Big Mogshed

Crops Bushes

Golf Courses

Artesian Well

SOUTHAMPTON

COMMON

Reservoir No. 3

Southampton Water Works

THE ORNAMENTAL LAKE

O.S. 25". 1897.

Karner's Cottages

Pond

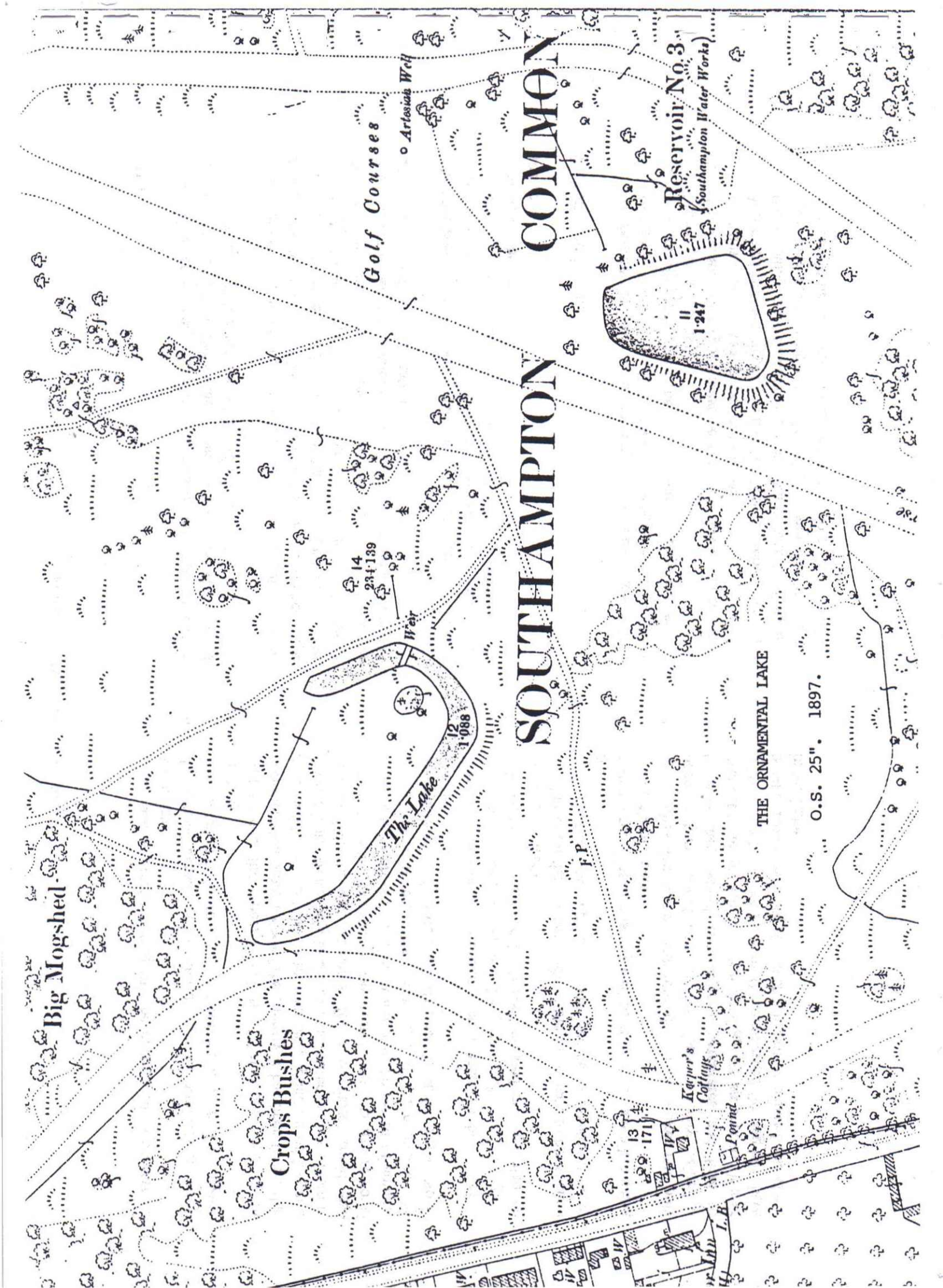
13 171

12 1088

14 234 139

11 1247

The Lake



10. Submerged waterweed could be planted in rolls of turf and weighed down to hold them in place to encourage their early re-establishment.
11. It is recommended that the Lake is not solely managed as a "fishery" by the N.R.A. but that conservation management is given greater importance in future years.

Note:

A pond dipping session organised by the Hawthorns Wildlife Association took place on the Common in August 1993. The small stream near the Cemetery Lake was chosen for this exercise and the following freshwater life was found:-

| | |
|--------------------------------|--------------------------|
| Pond Skater | Horse Leech |
| Whirligig Beetle | Bloodworm |
| Water Measurer | Flatworm |
| Greater & Lesser Water Boatmen | Ramshorn Snail |
| Beetles (Agabus family) | Pond Snail |
| Dragonfly Nymph | Snail eggs |
| Stonefly Nymph | Stickleback (common) |
| Alderfly larvae | Minnows (other fish fry) |
| Froglet | Toadlet |

It is pleasing to note that this wildlife exists on the Common and could return to the Ornamental Lake in time.

MILLER'S POND SU 451103

History

Millers Pond once stretched over several acres and was in two parts, the smaller, marshier area being fed by the stream running parallel to Middle Road while the larger part of the pond running alongside Botany Bay was fed by the stream coming down from Thornhill.

The earliest reference to Miller's Pond appears in 1759. It was an L-shaped pond spreading northwards and eastwards to Botany Bay and southwards to Mayfield Park. In 1806, however, the Pond's name was changed to Weston Pond, due to the siting of Weston Mill nearby. In 1826, the Pond's name was changed again becoming Mill House Pond, then owned by an old Southampton family named Taylor who also owned the Mill started in 1770.

By 1860, the Pond had decreased in size and passed under the newly built railway bridge. It was fed by springs bringing water from Weston Common.

Over time, the area of the Pond which extended northwards gradually silted up, the Pond becoming smaller and more rectangular. By 1919 it had separated into two parts, the larger part still passing under the railway bridge.

There are many accounts of the Pond as it was during the 1930's and 40's by locals who lived at those times. They made use of this local beauty spot with pony riding in the summer and ice skating in the winter. It was greatly valued as an amenity and for its varied wild life, some species being rarities. The whole of the valley systems of feeder streams had been important for newts, toads and frogs as

well as rare flowers in the Pond area, such as, the flowering rush. Swans and moorhens flourished on the Pond itself.

The Pond remained unaltered for half a century until 1966 when the Council drained it and dug it out leaving only reedy remnants as two large culverts took the Thornhill and Harefield streams to Mayfield Park. There were several reasons for this, one was that the larger pond was silting badly and local people were complaining of smells. Another, was the need to find a landfill site. A third reason was that the area was intended for development, a shopping centre, school, library, car park, and high rise flats were planned, the increase in population of area being estimated as 10,000 people.

By 1974, nothing had been done. An Echo report stated that it would be a further 4 years before anything was started. In the meantime, Southampton Corporation, which was, at that time, responsible for rubbish disposal, infilled the Pond which had become very shallow and silted up. The Hampshire Wildlife Trust (then the Hampshire & I.O.W Naturalists Trust) removed the rare plants to a place of safety before the Pond was finally drained.

The larger of the two parts of the old Pond had become a dry and barren area. The summer drought of 1975 dried up the other marshy area allowing reeds and willow to fill the watery centre.

The proposed development had still not taken place by 1978. The decrease in population and the ever increasing costs seemed to indicate it never would. The Southampton Schools Conservation Corps, with the consent of the Planning Department decided to do something to restore this place, once so beautiful, now fast turning into an eyesore.

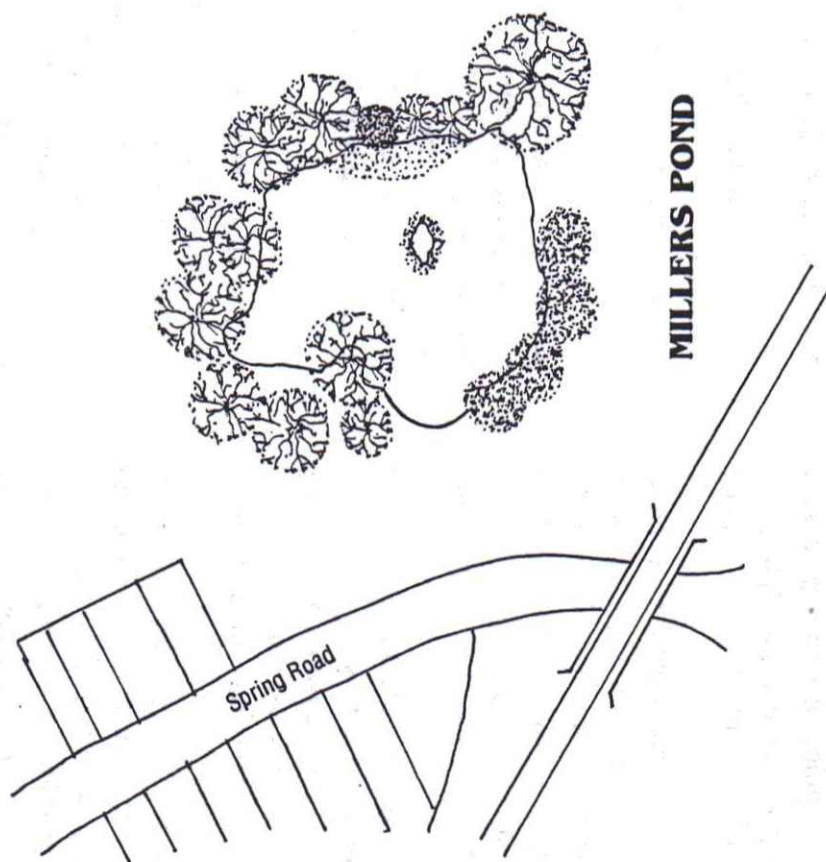
In 1978, members of the Corps sampled the marshy area for aquatic species but very few plants or animals were discovered. The Corps felt that if something was not done quickly, the whole area would be colonised by trees and all the water would disappear.

The Planning Office and the Nature Conservancy Council (now English Nature) were approached with the idea of excavating mud from the site and the creation of a mini Miller's Pond, only a fraction of its former size. These plans were accepted and the Conservation Corps began its work of revitalising the area.

Local residents were canvassed on their opinions on the re-creation of the Pond and were found to be greatly in favour of the scheme. The Nature Conservancy Council gave a 75% grant towards the cost of the work, the remaining amount being raised by members of the Southampton Schools Conservation Corps.

The process of re-creating the Pond took from November 1978 to February 1979 and was carried out in two stages. Firstly, the willow occupying the site was cut down and was either burnt on site or carted away. Secondly, a drag-line was hired to remove the mud in November. The second stage of enlarging the Pond by 120 square metres took place in the February and was done by a JCB.

The two problems of getting a good depth of water in the middle of the Pond, and the disposal of the spoil were overcome. The excavated area was rapidly filled by water from springs. It was impossible to bring back the feeder stream from Middle Road as this is culverted to a depth of 6 feet. The work of tidying up the banks, dealing with fallen trees, sowing grass seed and the planting of willows was carried out by the Corps members in March 1979.



To raise the water level, a dam was constructed by the Corps with timber supplied by the Forestry Commission. Water rising above the planned level was taken away via an existing drain to join the feeder streams in Mayfield Park.

With the construction completed and the Pond filled, regular sampling was undertaken and within a year the water was found to be rich in both plant and animal aquatic species. The range of marginal plants which reappeared (presumably from dormant seeds) was amazing. The Pond became a very attractive feature with clear water occupied by floating pond weed and surrounded by flowering plants. Mallards, moorhens and coots nested and dragonflies skimmed the water. At the time the Pond was being constructed, the future of the area was being considered by the Planners who zoned it for business and housing. Local residents were unhappy with these proposals and public meetings were arranged to discuss them. A 10 point charter was drawn up to combat development, one of the points being that "Miller's Pond should be conserved for wild life."

The grant from the Nature Conservancy Council (English Nature) for the re-creation of the Pond enabled English Nature to maintain an interest in it for a further five years. During that period, the Pond remained relatively undisturbed.

In the middle 1980's the character of the Pond was changed when fish were introduced into it. Fishermen / anglers began to occupy the banks and to "manage" the Pond for their own purposes. The oxygenating, submerged weed was dragged out, the banks were trodden down and pasted with mud. As a consequence of the lack of oxygen in the water, its quality was reduced and the aquatic invertebrates were affected. The marginal vegetation was greatly reduced.

The situation was serious and the English Nature visited the Pond again in 1987 and forwarded recommendations for the management of the whole of the Miller's Pond area in the interests of nature conservation to the City Council. The Report stated, "with the loss of many village and farm ponds, remaining ponds have increased value for wild life. An old pond like Miller's Pond is particularly important because over the years, it has achieved some stability and diversity of habitat which have a rich compliment of flora and fauna. The careful management of such a system is vital if the stability and diversity is to be retained". It was also recommended that half the Pond should be protected by restricting general access to the wet, marshy area (see map).

Changes were made to the Pond at this time through the local Projects Scheme. This scheme enabled local people to carry out their plans, with Grant Aid from the City Council. The dam was removed and a new drain constructed with the overflow placed in the southeast corner. A shallow bay intended for pond dipping was created. Two platforms with steps were built on the eastern side to accommodate local fishermen.

To comply with the E.N's suggestions, the City Council fenced off the western area of the Pond and planted native species behind the banks to form a thicket. A proposal to dig out the northeast corner to reduce public access to the sensitive area was omitted from the plans. Extra marginal plants were added.

As well as using the fishing platforms after 1990, fishermen also occupied all the banks which had been earmarked for nature conservation. The far eastern side of the Pond remained relatively unchanged. One of the islands has thrived successfully. The emphasis on fishing since 1988 has remained and the aim of

Newton

O.S. 25" 1896.

MILLER'S POND

For's Monument

Mayfield

Miller's Pond

Spring House

Brick Works

(Great Pit)

(Lay Pit)

BRICK YARD HILL ROAD

COOPER

50

95

2.003

41

B.M. 95.6

5.010

65

SL. B.M. 47.6

I.H.

50

92

R.M. 69.8

B.M. 98.9

E

H

N

managing the Pond's ecosystem for wild life has diminished. Fishermen have continued to manage the Pond by removing weed and in 1990 the remaining submerged weed was killed off by the introduction of a specific weed killer. The banks continue to be trampled and all the bank side vegetation has virtually disappeared. The 1989/1990 planting has thrived away from the Pond but has not achieved the object of a thicket.

A fish survey carried out in 1991 by the National Rivers Authority (NRA) found nine species of fish present. Some had been introduced by the NRA.

The findings of this Report were that the Pond was a small but important "fishery" and that the fishing in it should not be prevented; also that fish stocks would benefit from a reduction in numbers to encourage growth rates and control parasites.

In 1989/90 an attempt had been made by landscaping and fencing as well as the provision of fishing platforms to share out this small resource and protect its wild life interest. The landscaping carried out in 1989/90 in order to comply with the recommendations of the E.N. included the two fishing platforms previously mentioned. These platforms can accommodate up to six fishermen which is considered reasonable in view of the Pond's size and the desirability of restricting public access on the northern side. Outside the closed season, the Pond is in constant use by up to two dozen fishermen at a time who are spread all around the banks. The Sholing Valleys Study Centre Association although having no jurisdiction over the Pond keep it tidy and help to protect the north-eastern bank which is of particular ecological value. Members of the Association also help children with pond dipping.

At this moment in time, Miller's Pond, in late summer of 1993, presents a very different picture from that of ten years ago.

The water is cloudy and green, and there is no floating vegetation apart from water lilies. Trees are growing in the reed beds and a huge amount of dead leaves accumulating on the side (furthest from the road) has reduced the available habitat area. Some silting has occurred but as the pond is only fed by springs and not streams, it is most likely that the organic matter in the pond has not broken down completely because of the lack of oxygenating plants in the water.

The oxygenating submerged weed and floating pond vegetation has been systematically removed by the anglers as mentioned above and this has led to the deterioration of the Pond.

We understand that terrapins have been introduced into the water in the last few years and that these are now the "size of dinner plates", would this account for the lack of amphibians?

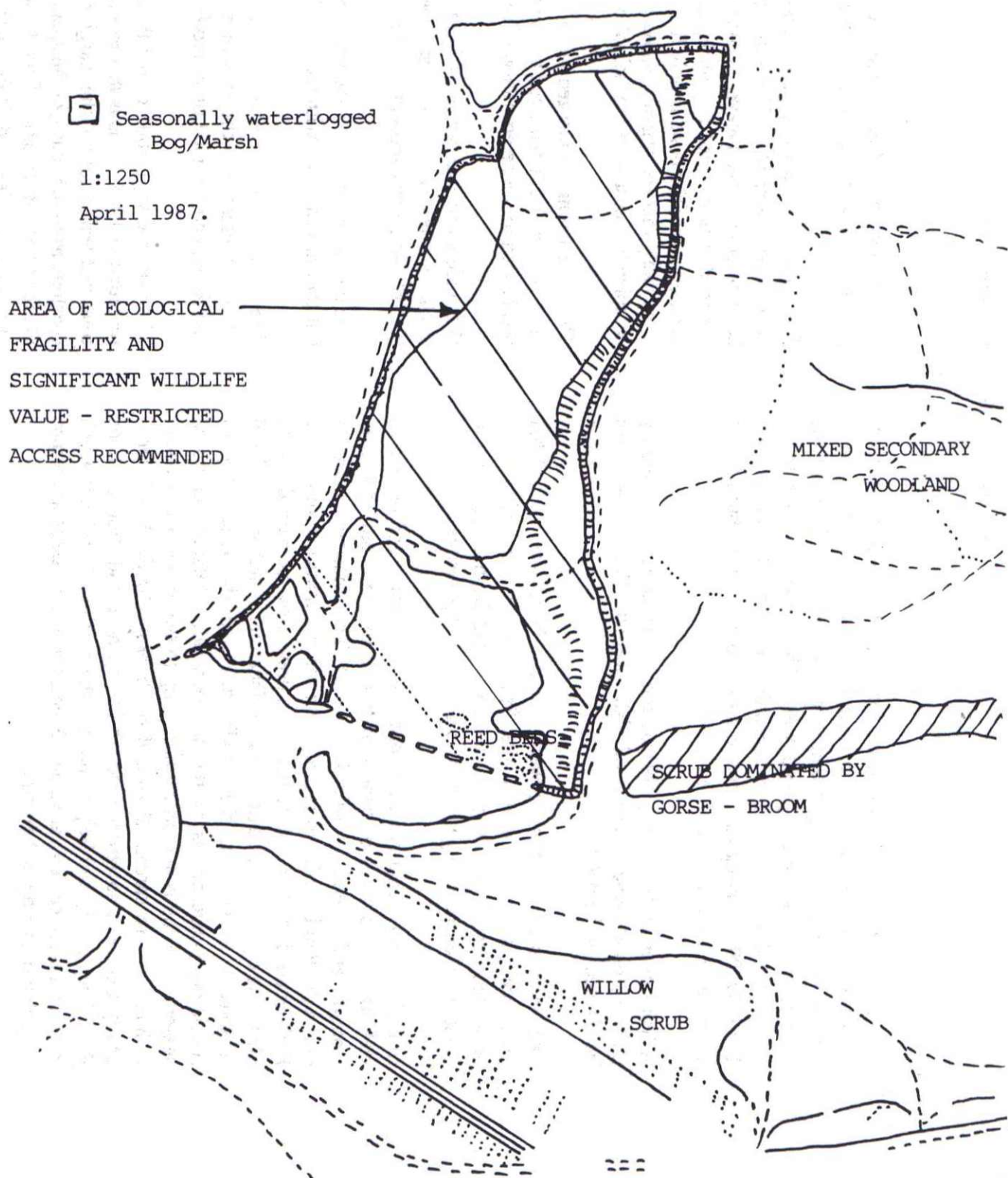
The coarse fish present have not been recorded as they tend to vary but they are enclosed with the N.R.A. report.

The fauna surveys are encouraging in that they show most classes of animals present, but the loss of some animals, notably snails and caddis fly, and the addition of tubifex worms shows a deterioration.

The marginal vegetation of the Pond has deteriorated since it was recorded in 1983. This is due to several factors:- 1) the growth of trees and leaf litter on the margins of the Pond on the eastern side (farthest from the road), 2) the space taken up by the official fishing platforms, 3) the erosion of the banks by trampling on the western and northern sides, and 4) the flooding of the western banks in time

MILLER'S POND

Recommendations made to Strategy & Development by English Nature (N.C.C.) in 1987.



of heavy rainfall, due to the overflow drain being placed, in 1988, at a higher level than the previous drain. When the Pond is flooded the banks become a sea of mud. Although some marginals have been noted as present, there are very few of them.

SURVEY OF WILDLIFE IN AND AROUND MILLER'S POND 1983

BIRDS COMMONLY SEEN ALL THE YEAR ROUND

Blackbird
Heron
Blue tit
Kestrel
Bullfinch
Long-tailed tit
Chaffinch
Magpie
Coal tit
Mallard
Collared dove
Moorhen
Coot
Redpoll
Grt. Spotted woodpecker
Robin
Great tit
Wood pigeon
Greenfinch

In the summer, Chiff-chaff, Willow Warbler and others visit the area.

POND VEGETATION 1983

Alisma plantago-aquatica (Water plantain)
Apium nodiflorum (Fools' watercress)
Berula erecta (Lesser water-parsnip)
Callitriche stagnalis (Starwort)
Carex aquatilis (Water sedge)
Carex appropinquata (Tussock sedge)
Chara hispida (Stonewort)
Elodea canadensis (Canadian pondweed)
Galium palustre (Marsh bedstraw)
Glyceria maxima (Reed sweet-grass)
Iris pseudocorus (Yellow iris)
Juncus effusus (Soft rush)
Lemna minor (Common duckweed)
Lycopus europaeus (Gipsywort)
Mentha aquatica (Water mint)
Myosotis scorpioides (Water forget-me-not)
Nuphar lutea (Yellow Water-lily)
Oenanthe crocata (Water dropwort)
Phalaris arundinacea (Reed canary-grass)
Polygonum amphibium (Amphibious bistort)
Polygonum persicaria (Persicaria)
Potamogeton natans (Broad-leaved pondweed)
Ranunculus lingua (Greater spearwort)
Ranunculus peltatus (Water crowfoot)
Ranunculus sceleratus (Celery leaved buttercup)
Colanum dulcamara (Woody nightshade)
Sparganium erectum (Bur-reed)
Typha latifolia *augustifolia* (Bulrush)
Veronica beccabunga (Brooklime)

Introduced without success:

Butomus umbellatus (Flowering-rush)
Hydrocharis morsus-ranae (Frogbit)
Stratiodes aloides (Water-soldier)

POND VEGETATION 1993

Apium nodiflorum (Fool's Watercress)
Berula erecta (Lesser Water-parsnip)
Cardamine amara (Large Bittercress)
Chrysosplenium alternifolium (Golden Saxifrage)
Epilobium hirsutum (Great Willowherb)
Equisetum palustre (Water Horsetail)
Glyceria maxima (Reed sweet-grass)
Iris pseudocorus (Yellow iris)
Lemna minor (Common duckweed)
Lycopus europaeus (Gipsywort)
Mentha aquatica (Water mint)
Nuphar lutea (Yellow water-lily)
Nymphaea alba (White Water-lily)
Oenanthe crocata (Water dropwort)
Phalaris arundinacea (Reed canary-grass)
Polygonum amphibium (Amphibious bistort)
Polygonum persicaria (Persicaria)
Solanum dulcamara (Bittersweet)
Typha latifolia augustifolia (Bul-rush)
Veronica beccabunga (Brooklime)

Ranunculus sceleratus (Celery-leaved Buttercup),
a rare plant very occasionally produces a plant
or two but they are usually walked on.

TREES

Alnus glutinosa (Alder)
Salix caprea (Grey willow)
Salix fragilis (Crack willow)
Salix viminalis (Osier)

MILLER'S POND FRESHWATER FAUNA 1983

Flatworms possibly *Polycelis* or *Phagocata*

| | | |
|----------|-------------------------------|--------------------------|
| Molluscs | Great Ram's Horn Snail | <i>Planorbis corneus</i> |
| | Flat Great Ram's Horn Snail | <i>P.complanatus</i> |
| | Button Great Ram's Horn Snail | <i>P.spirobis</i> |
| | Great Pond Snail | <i>Lymnaea stagnalis</i> |
| | Wandering Snail | <i>L.peregra</i> |

Leeches

Water mites

Water fleas

Copepoda

Water Slater

Freshwater Shrimp

Damselflies

Dragonflies

Emperor Dragonfly

Southern Aeshna

Saucer Bug

Great Diving Beetle

Whirligig Beetle

Midge

Bloodworm

Daphnia Sp.
Cyclops Sp. and others
Asellus aquaticus
Gammarus pulex
Larvae

Anax imperator larvae
Aeshna cyanea
(Adults & larvae)
Ilyocoris cimicoides
Dytiscus marginalis
Adults & larvae
Hyphydrus ovatus
Gyrinus Sp.
Culex Sp.
Chironomus Sp.

| | |
|---------------|-------------------------------|
| Backswimmer | <i>Notonecta</i> Sp. |
| Water Boatman | <i>Corixa</i> Sp. |
| Caddis-fly | <i>Limnephilus</i> Sp. larvae |

Sticklebacks, Newts, Frogs and Toads

MILLER'S POND. SMALL FRESH WATER FAUNA 1993

| | |
|--------------------|---|
| Tubifex worms | |
| Leeches (numerous) | |
| Water fleas | <i>Daphnia</i> Sp. |
| Copepods | <i>Cyclops</i> Sp. |
| Water slater | <i>Asellus aquaticus</i> (very abundant) |
| Freshwater shrimp | <i>Gammarus pulex</i> |
| Damsel flies | <i>Coenagrion</i> Sp.. Larvae & adults |
| Dragon flies | <i>Aeshna cyanea</i> & other spp. Larvae and adults |
| Mayfly sp. | Larvae |
| Water measurer | <i>Hydrometra</i> Sp.. |
| Water scorpion | <i>Nepa</i> Sp. |
| Backswimmer | <i>Notonecta</i> Sp. Nymphs & adults |
| Water boatman | <i>Corixa</i> Sp. Adults |
| Water beetles | Great Diving beetle <i>Dytiscus</i> Larvae and adults |
| | Great Silver beetle |
| | <i>Hydrophilus</i> sp. Adults |
| Midges | <i>Culex pipiens</i> |

| | |
|--------------------------------------|-----------------------------------|
| Blood worms | <i>Chironomus</i> 2 Sp. abundant. |
| <i>Clubiona</i> spider on vegetation | |

Stickleback; Frog tadpoles

Recommendations

1. The trees in the reed beds on the eastern side should be removed by hand.
2. The trees that are overhanging the water along the eastern bank could be cut back to increase the light. Fallen trees along this bank could be removed.
3. Decaying leaves should be removed by hand.
4. Submerged weed needs to be planted in the water at a rate of six plants per square foot, and pond weed (*Potamogeton* Sp.) introduced.
5. The fencing needs repairing on the western side.
6. The bank on the western side requires restoration work further up the bank to prevent erosion.
7. Angling should be restricted to the fishing platforms, and pond dipping to the boarded bay as was intended.
8. Fish need to be removed (see Report by Area Fisheries Officer at the rear of this document.)

OTHER STRETCHES OF FRESH WATER IN SOUTHAMPTON

There are other lakes and ponds in Southampton that should be mentioned, the Cemetery Lake and the Boating Lake on the Common for example, neither have problems of angling and access. The former supports numbers of wildfowl which provide great public enjoyment and which are fed during hard weather. The water in this Lake is enriched by wildfowl droppings, giving rise to algal blooms in hot weather. Some fish and invertebrates are present. The aquatic environment is not in balance because of the large numbers of wildfowl and gulls using the Lake, but this is acceptable in view of the birdlife.

The Boating Lake is a Site of Special Scientific Interest (S.S.S.I.) because of its Great Crested Newt population, and is managed for their survival only. A family of Dabchicks is currently in residence, and numbers of Mallards use the Lake.

Another pond, recently restored, exists in Weston Greenway at the bottom of the woods near the shore. It is managed for wildlife and passive recreation by the West Wood Rangers.

In the Lordswood Greenway, there is a very small pond beside a marsh. Neither the pond nor the marsh are of great ecological value and are difficult to get at being at the furthest, western edge of the Greenway.

Meggeson Pond, off Meggeson Avenue, was created seven years ago (1986) by a local community initiative comprising the

Community Association, pupils from Bitterne Park School, the City Leisure Services Department and the Schools' Conservation Corps.

A grant from Shell enabled rubbish, scrubby trees and the silt to be removed; the banks to be strengthened and planted up and the water to be restored. Since its completion, it has developed into a pleasant amenity with bankside flora, Water lilies and Mallard ducks.

SUMMARY

Mansbridge Reservoir (1.5 hectares)

This is one of the most interesting and least degraded of pond habitats. It is a visually attractive, pleasant recreational amenity for people with many different interests. There are varied tree, herb and aquatic floras.

The anglers space themselves out, permitting others to enjoy the views. However, there are usually more present than has been deemed a fair number, there are also the additional problems of unofficial waterweed removal, tree cutting and rubbish. Dogs are sometimes a nuisance, harassing the wildlife.

The aquatic management is satisfactory. Adding more fish (which is being recommended) may change the present state for the worse. (10 rods)

Goldcrest Pond (0.20 hectares)

A pleasant pond set in a pleasant environment. The water quality is good; the flora and fauna interesting. It would improve if much less

rubbish was introduced into it. It was given a maximum score of 4 by Geo-Data.

A small amount of fishing, principally by young people, which is not too much of a problem apart from the introduction of unwanted species of fish, the breakdown of the bank and rubbish such as fishing line, wrappers and plastic bottles left behind.

Dogs enter the water, and in such a small pond, churn up a great deal of mud. If the gap in the bank were to be repaired, damage to the Pond's edge would be contained.

Notices re: rubbish dumping are needed. (2 rods Max.)

Cromarty Pond (1 hectare)

Major work is needed here. The back of the island, together with its trees needs to be removed in order to widen the channel between the island and the bank. Rhododendron needs cutting back.

A silt trap is required where the feeder stream enters the Pond. The Pond itself should be deepened by silt removal and its banks should be raised. Litter bins should be provided and notices are required urging people to refrain from dumping and lighting fires.

Brambles should be removed as required to keep open the meadow and grassy areas.

Fishing is moderate and mostly by young people but they do leave their rubbish and fishing line behind.

Rubbish is constantly accumulating. A fence has been promised to separate the Pond from the football field, this would help prevent disaffected fans throwing their rubbish into the water.

Tender, loving care is needed. (4 rods max.)

Shirley Pond (0.53 hectares)

The object of management should be to preserve the tranquil scene of this stretch of water with its Water Lilies and surrounding trees. Also to increase the wildlife which is much appreciated by the local people who find swans, ducks, moorhens, kingfishers and small birds of constant interest.

Unfortunately, there is little cover for wildlife at present owing to recent drastic dredging and tree removal. It is to be hoped that this will be remedied as soon as possible.

The number of anglers has been small until recently; they need to be organised before problems arise, and allotted certain spaces, possibly one per bank.

The trees overhanging the stream-side path could be cut back a little. The stream bed needs rubbish removing. (4 rods)

Miller's Pond (0.19 hectares)

The problems of Miller's Pond need to be looked at hard and long. The Pond has deteriorated badly in the last few years due to wear and tear. Apart from the close season, it is never free from anglers, and people trampling the banks. Fencing needs repair and notice

boards are required explaining management objectives, i.e. fishing platforms, out-of-bounds areas etc.

The eastern bank should be cleared of fallen trees, small willows and silt; an occasional cutting back of the bankside trees would permit more light onto that part of the Pond, potentially the area of greatest variety.

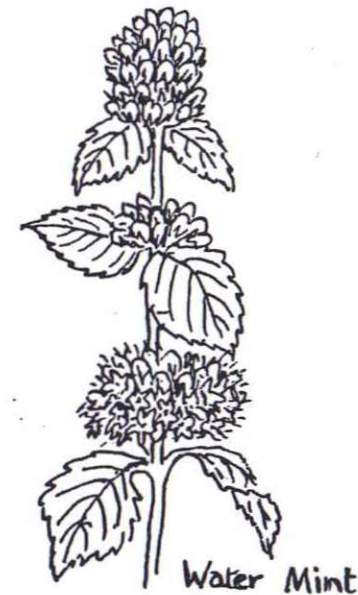
This is another pond regarded as a "fishery", although the N.R.A. has suggested a reduction of fish stocks. Doing so would reduce the turbidity of the water.

The aquatic vegetation is very poor, introducing waterweed at the same time as fish numbers are reduced would improve water quality and increase invertebrate numbers.

Anglers should keep to their designated fishing platforms to permit the banks to recover from constant use. (6 rods)

Ornamental Lake (2 hectares)

Much has already been written about its shortcomings and possible ways of overcoming them. A concerted effort is needed to return it to a pleasant and attractive part of the landscape and a habitat rich in aquatic species. It can be done but not without a reduction in both fish stocks and anglers. (20 rods)



Abbreviations

| | |
|-------------|---|
| E.N. | English Nature |
| N.R.A. | National Rivers Authority |
| N.C.C. | Nature Conservancy Council (now English Nature) |
| S.S.C. | Southampton City Council |
| S.S.C.C. | Southampton Schools' Conservation Corps |
| S.S. Ltd. | Southern Science Ltd. |
| S.W. | Southern Water |
| S.W.S. Ltd. | Southern Water Services Ltd. |

Appendices

| | |
|------------|---|
| Appendix A | Letter from Southern Water |
| Appendix B | Extract from Geo-Data Institute Document "Towards a Management Strategy for Southampton's Greenways". |
| Appendix C | Discussion para 4.3 Southern Science Ltd. Report 1992. |
| Appendix D | Extract from Southern Water Services Ltd. Report 1993. |
| Appendix E | P.24. Extracts from Fishery Survey, Miller's Pond 1991 National Rivers Authority. |



making water work

Southern Water

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Grainger Davies
Regional General Manager

Our ref. RAF/Tanners Brook
Your ref.

Mrs P Loxton
Honorable Secretary
Southampton Schools Conservation Corps
3 Canton Street
Southampton
SO1 2DJ

Enquiries to:
R A Fisher

24 April 1989

Dear Mrs Loxton

SHIRLEY POND - SOUTHAMPTON

Further to our recent meeting at the above site I am now in a position to let you have the information you require.

1. SILT

A Depth profile was carried out over the whole pond and it would appear that there is, on average, 0.3 to 0.4 metres of water on top of 1.0 to 1.5 metres of silt. A sample of this silt was taken and there does not appear to be toxic substances present but there are obvious deoxygenation problems caused by the organic nature of the silt. The silt is of a very fine nature which does not settle out very easily, it was also noticed that there was a lot of debris and rubbish in the fringe area of the pond including branches, cans and old oil drums. Due to the depth of the silt there is little chance of any submerged aquatic weeds growing as these will be unable to grow through the silt blanket.

2. WATER QUALITY

Samples of both the inlet stream and the pond were analysed chemically and biologically for Water Quality. The chemical analysis revealed that in dry weather the stream was of Class 1B, ie. the second highest Water Quality rating in the National Rivers Classification Scheme but after heavy rain this classification falls to Class 2 due to the material washed down the stream from urban run-off, even Class 2 is good enough to support coarse fish. The biological examination of the stream showed the presence of worms, leeches, water slaters, mayflies and shrimps which reflects the good water quality shown in the chemical analysis.

.....continued

.....continued

3. FISH POPULATION

An electro-fishing analysis was carried out in the whole of the pond which produced some unexpected results. The species of fish found were:-

- a. Three spined sticklebacks - very large numbers.
- b. Tench - large numbers of three distinct size groups which showed a good breeding population.
- c. Carp - small numbers of this breed which also appear to have crossbred with gold fish, most of the crossbreeds were reverting to wild colouration.
- d. Roach - a few small fish found.
- e. Chub - one small specimen.

The large number of fish present which show indications of breeding populations also indicates the good water quality.

4. PLANTS AND ANIMALS

There were very few aquatic plants visible, rushes being the main species present, my comments about the silt indicate the reasons for the scarcity of submerged oxygenating plants. The main animals present were ducks, waterhens, coots and geese.

CONCLUSIONS:-

Shirley ponu is a small pond receiving urban run-off. During dry periods the water quality is excellent but during heavy rain the water quality drops due to large amounts of silt and organic debris which is typical of a stream passing through built up areas with road and surface water connections. To avoid the contamination of the pond with this urban debris it may be wise to ensure that the pond does not receive run-off during the winter period.

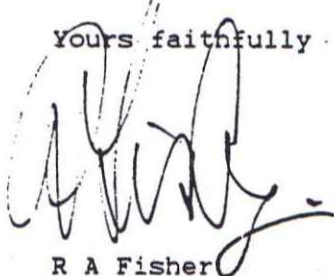
There is a large and varied healthy fish population which is breeding steadily although the addition of some more roach could be an advantage, Southern Water may be able to assist in this matter.

The main problem with the pond is the excessive amount of silt, something like 2/3 rd of the volume of the pond is silt. To improve the situation large scale silt and debris removal will be necessary but this would prove to be physically difficult due to the confined nature of the pond. If agreement is reached to clear the pond of silt I would suggest the following course of action:-

- i. Electrofish as many fish as possible and remove them for safe keeping
- S.W.A. could do this.
- ii. Drain the pond, taking care to ensure silt does not pass downstream.
- iii. Leave the pond to dry out, the silt will be much more easily removed
the drier it is.
- iv. Plant the pond with submerged weeds and refill.
- v. Return all fish and add some more roach.

I hope this letter helps you to assess your position with Southampton City Council and if you need any further assistance or clarification please do not hesitate to contact me.

Yours faithfully

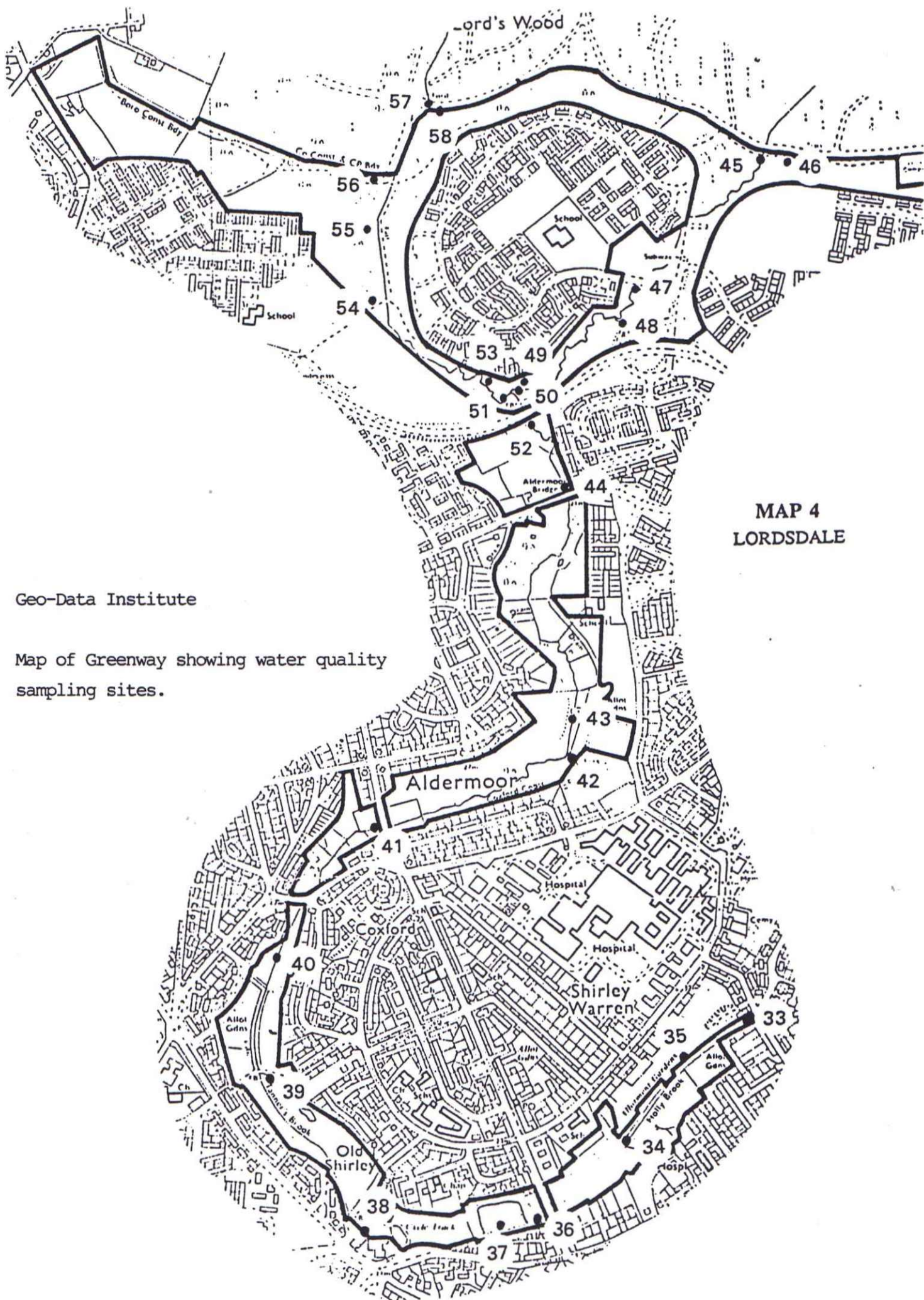
A handwritten signature in dark ink, appearing to be 'R A Fisher', written over the typed name.

R A Fisher
DISTRICT ENVIRONMENTAL OFFICER

| SITE | TOTAL COLI- FORM COUNT | p.H. | B.O.D. mg l ⁻¹ | E C μS cm ⁻¹ | mg l ⁻¹ | | | | mg l ⁻¹ | | |
|--|---------------------------------|------|----------------------------------|--------------------------------|--------------------|-----------------|-----------------|-------|--------------------|-------------|------------|
| | | | | | NH ₃ | NO ₃ | PO ₄ | c L | Cu | Zn | Pb |
| 33. DALE VALLEY RD. | 14400 | 7.45 | 1.20 | 435 | 6.05 | 0.14 | 0.09 | 39.50 | 1.99 | 68 | <1.00 |
| 34. BEGINNING OF PIPE REC. GROUND | 9500 | 6.83 | 1.00 | 445 | 0.04 | 1.97 | 0.09 | 38.70 | 13.86 | 25 | <1.00 |
| 35. CHALYBATE | 16 | 7.63 | 2.50 | 590 | 0.23 | 3.80 | 0.07 | 27.20 | 47.50 | 52 | 5.30 |
| 36. END OF PIPE | 12900 | 6.91 | 1.30 | 450 | 0.25 | 2.47 | 0.14 | 38.60 | 10.19 | 48 | <1.00 |
| 37. POND | 1600 | 7.04 | 8.60 | 525 | 0.03 | 0.08 | 0.07 | 43.40 | 7.50 | 77 | 20.00 |
| Selected water quality standards (based upon information derived from E.E.C. directives) | | | | | | | | | | | |
| FRESHWATER PROTECTION OF COARSE FISH | | 6.9 | 6 | | 0.78 | | 0.131 | | 5-112 | 30- 2000 | 50- 250 |

Data derived from, "Towards a
Management Strategy for
Southampton's Greenways".

Geo-Data Institute.



MAP 4
LORDSDALE

Geo-Data Institute

Map of Greenway showing water quality
sampling sites.

4. DISCUSSION

- 4.1 This discussion, based upon results obtained during the survey conducted by Southern Science Ltd on 16th September 1992, will consider the present condition of Shirley pond and subsequently highlight areas for future consideration in the development and maintenance of the pond, including recommendations for future work.

Present Situation

General Condition

- 4.2 The current features of Shirley pond have been mapped and are presented in Figure 1. This approximate plan is intended as a guide to the main areas of vegetation and other main features. From this plan it is apparent that the eastern end is the most densely vegetated, dominated by willow trees, bulrush and general vegetation. In addition a small island exists, overgrown with willow trees. A large stand of willow trees also exist on the southern side of the pond, on a small outcrop of land and overhanging the water. The central area of the pond is dominated by a large water lily bed. In addition large oaks and sycamores are present around the immediate vicinity of the pond.
- 4.3 The flow of water through the pond is very low with only a very small inflow at the north-eastern end and outflows at the south-western end. Pond levels are maintained by this low flow and through precipitation. The depth of the pond, once reputedly the deepest in Hampshire, was at one time maintained by the nearby Holly Brook which flowed into the pond. However, the destruction of one of the sluice gates has resulted in the halting of the flow. Re-opening of the sluice gates has been prevented by the local council, who claim that medical waste from the nearby Southampton General Hospital has been found in the stream, presenting a health hazard. The halting of this flow has resulted in the extensive and rapid silting of the pond with maximum water depths now in the order of 0.75 m. The silt layer at all three sampling points (A, B & C) was found to be considerable with depths of over 1 m recorded. This silting is a direct result of the deposition of leaf material and other organic material, coupled with the drastic reduction in the flow of water through the pond. Redox potential readings (an indication of the aerobic or anaerobic nature of the sediment) were taken at the three sampling points the results of which are presented in Table 1. These results indicate that anaerobic conditions exist at all three sites. The presence of anaerobic conditions will slow the breakdown of organic material resulting in the increased build up of material and rapid silting.

Water Quality

- 4.4 Water samples were collected at site C for analysis for total phosphates, ammonia and p.H. In addition dissolved oxygen (D.O) and temperature were recorded at all three sampling points (Table 1). Levels of phosphates, ammonia and p.H were all within

TABLE 3.1

PHYSICO-CHEMICAL RESULTS - SHIRLEY POND 15 OCTOBER 1993

| PARAMETERS | SITE | | |
|----------------------|-------|-------|-------|
| | A | B | C |
| pH | 8.23 | 7.13 | 7.33 |
| Temperature (°C) | 12.6° | 12.9° | 13.5° |
| Dissolved Oxygen (%) | 82.9 | 69.0 | 64.8 |
| (mg/l) | 8.60 | 7.05 | 6.60 |
| Salinity | 0.3 | 0.2 | 0.2 |
| Conductivity | 0.516 | 0.416 | 0.402 |
| Nitrate (mg/l) | - | - | 2.7 |
| Phosphate (mg/l) | - | - | 0.06 |

KEY

- Not Determined

TABLE 3.2 FAUNAL RESULTS - SHIRLEY POND 15 OCTOBER 1993

| ORGANISM | | ABUNDANCE | | |
|--|---------------------------|-----------|---------|------|
| | | A | B | C |
| MALACOSTRACA | CRUSTACEANS | | | |
| *Gammaridae <i>Gammarus pulex</i> | Freshwater shrimps | >55 | 11 | >130 |
| *Asellidae | Water loglice | | | |
| <i>Asellus aquaticus</i> | | >70 | 19 | >90 |
| CLADOCERA | | | | |
| <i>Daphnia</i> sp. | | >20 | >20 | >50 |
| COPEPODA | | >10 | >10 | >5- |
| MEGALOPTERA | Alderflies | | | |
| *Sialidae <i>Sialis lutaria</i> | | 1 | 2 | 1 |
| HEMIPTERA | Bugs | | | |
| *Corixidae <i>Corixa</i> sp. | | 1 | 1 | 3 |
| *Notonectidae <i>Notonecta glauca</i> | Water Boatman | | | 3 |
| *Mesoveliidae <i>Mesovelia furcata</i> | Water bugs | | | 1 |
| *ODONATA | Dragonflies & Damselflies | 1 | | 1 |
| COLEOPTERA | Beetles | | | |
| *Halipidae <i>Halipus</i> sp. | | 1 | | 2 |
| EPHEMEROPTERA | May Fly | | | |
| *Baetidae <i>Coenotoposia pascuolatus</i> | | 1 | | 1 |
| GASTROPODA | Snails | | | |
| *Physidae <i>Physa fontinalis</i> | Bladder Snail | 3 | 4 | 7 |
| *Hydrobiidae <i>Potamopyrgus jenkinsi</i> | Jenkins's Spine Snail | | 1 | 1 |
| *Planorbidae <i>Planorbis laevis</i> | Smooth Ramshorn | 2 | | 2 |
| BIVALVIA | Mussels & Cockles | | | |
| *Sphaeriidae <i>Placidum</i> sp. | Pan Shell Cockles | >50 | 23 | 11 |
| HIRUDINEA | Leeches | | | |
| *Glossiphoniidae <i>Helobdella stagnalis</i> <i>Theromyzon tessellatum</i> | | 16 | 10 1 | 6 |
| TRICLADIDA | Flatworms | | | |
| *Planariidae <i>Dugesia polychroa</i> | | 1 | | 3 |
| *OLIGOCHEATA | Worms | >100 | >70 | >60 |
| *CHIRONOMIDAE | Flies | 5 | >50 | >60 |
| No. of taxa | | 16 | 13 | 19 |
| Total individuals | | >353 | >222 | >437 |
| No. of scoring taxa (marked with *) | | 14 | 10 | 17 |
| BMWP score | | 53 | 33 | 66 |
| ASPT | | 3.31 | 2.54 | 3.47 |

4 DISCUSSION

- 4.1 This discussion will consider the present status of Shirley Pond and highlight areas for future consideration in the development and maintenance of the pond.

General Conditions

- 4.2 Floral features of Shirley Pond which were mapped by Southern Science Ltd in 1992 remain much the same. Figure 4.1 provides a guide to main areas of vegetation and major features. The eastern end of the pond is most densely vegetated, dominated by willow trees, bulrush and general vegetation. Some of the willow has been thinned, particularly on the island, at some point over the last year, but the quantity of willow present is still substantial. The central area of the pond is dominated by a large water lily bed, and a large stand of willow trees exist on the southern side of the pond. In addition, large oak and sycamore trees are present around the immediate vicinity of the pond. Photographs of Shirley Pond are shown in Plates 1, 2, 3, and 4.
- 4.3 Silt levels within the pond are extensive, with a maximum depth of approximately 1m. Low water flow plus substantial inputs of allocthonous material probably resulted in this extensive siltation problem.

Water Quality

- 4.4 Because the concentrations of phosphates, ammonia and pH are within the levels required to support freshwater fish (Gardiner and Zabel, 1989), water quality in Shirley Pond can be deemed as relatively good. Oxygen levels are relatively high, with maximum levels at 82.9%. This is good, when considering the low water renewal rate and the high degree of siltation.
- 4.4.1 The potential for deoxygenation does exist, however. The combination of shallow water depth, long water renewal time, increased nutrient levels and algal presence could result into a progressive eutrophic state. A consequence of these conditions could possibly lead to severe anoxic conditions. Increased nutrient levels will encourage the development of algal blooms, raised pH and reduction in oxygen levels. In this situation, fish kills could occur, with additional reductions in invertebrate abundance and diversity.

Invertebrate Assessment

- 4.5 Invertebrate populations within Shirley Pond, whilst only representing 2.3% of the British taxa list for which taxonomic keys exist, are relatively diverse and numerous. A total of 20 taxa were recorded in the pond, with the community being dominated by the freshwater shrimp. The BMWP scores reflect moderate water quality, the values are likely to be depressed because of the presence of large quantities of silt of organic origin.

Future Work

- 4.6 Faunal diversity in Shirley Pond is presently reasonably varied, with a good range of invertebrates and fish. Water quality is fairly good, within acceptable ranges required to support freshwater fish. The additional use of the pond and its immediate vicinity by other wildlife make it an invaluable contribution to wildlife conservation in an urban area.
- 4.7 The dredging of the pond to remove large volumes of silt will initially disturb the environment, but eventually should result in improved conditions within the pond. Removal of the silt layer will deepen the pond. This combined with diminished organic enrichment may encourage a macroinvertebrate community, represented by a large number of species. Organisms unable to inhabit environments with high levels of silt and organic material may be able to colonise Shirley Pond, and so increasing invertebrate diversity. Prevention of accretion of silt could be assisted by the positioning of a silt trap at the point of inflow plus the removal of some of the vegetation on the eastern side of the lake.
- 4.8 Remedial work on Shirley Pond would benefit both the fauna present and improve it's recreational value. Potentially, an excellent fishery could be developed with proper management, and the pond could also be of educational benefit to local schools.

INTRODUCTION

Millers Pond lies in the Sholing Valley in Eastern Southampton at NGR SU 450 110. The Sholing Common stream, which joins the Weston Stream a short distance downstream from the pond to discharge to Southampton Water at Woolston, is culverted below the pond and plays no part in the water budget of the pond.

The pond lies in a small public park, and has built-up banks with a gravel path around the perimeter. The pond is owned by Southampton City Council, and used by locals for coarse angling.

The area is of interest to the Sholing Valley Study Group who requested that a fishery survey be carried out to assess the fish stocks in the pond.

RESULTS

A total of 105 fish of nine species (mirror carp are a variety of common carp) were caught, with a total weight of 11.767 Kg. Individual data is listed in Appendix 1, and summarised in Table 1.

TABLE 1. Summary of fish sample

| SPECIES | No IN SAMPLE | TOTAL WEIGHT (g) |
|--------------|--------------|------------------|
| TENCH | 36 | 5154 |
| RUDD | 42 | 747 |
| COMMON CARP | 13 | 2090 |
| MIRROR CARP | 1 | 1311 |
| ROACH | 4 | 191 |
| ORFE | 4 | 1771 |
| CRUCIAN CARP | 1 | 61 |
| GOLDFISH | 1 | 91 |
| PERCH | 2 | 85 |
| EEL | 1 | 266 |
| TOTAL | 105 | 11,767 |

Figures 1 and 2 show the percentage composition in the sample of each species by number and weight respectively.

The only parasites seen were the fish louse *Argulus foliaceus* seen on one carp and one rudd and the fish leech *Hemiclepsis marginata* present on one carp.

DISCUSSION

This sample of fish showed a good species range present, typical of a good quality small pond.

Orfe and goldfish are alien ornamental species, and no doubt were derived from local garden ponds or aquaria. Some of these fish were introduced to the pond by the NRA on 21st February when fish were rescued from Jurds Lake, Woolston. This small lake lies in the grounds of the former RN Depot which was being redeveloped and the lake drained. As this lake was fed by the Weston Stream, and in the same catchment as Millers Pond, it was considered appropriate to place the few fish rescued into Millers Pond. The orfe particularly were large, young fish, and represented a significant proportion of the biomass of this sample. It is quite possible that these fish will be removed by locals during the season as they are potentially valuable ornamental fish.

The remaining species are native coarse fish.

Electrofishing is not a reliable method of obtaining a quantitative sample from

a still water because many fish flee from the electrical field and are not caught.

No confidence can therefore be placed on this sample reflecting the true biomass of fish present, but the sample will be a good guide as to the growth rate and condition of the fish.

Tench were second numerically in the sample, but dominated the biomass. Figure 3 shows the length distribution in the sample, and figure 4 shows the weight - length relationship. None of these fish were particularly large specimens.

CONCLUSIONS

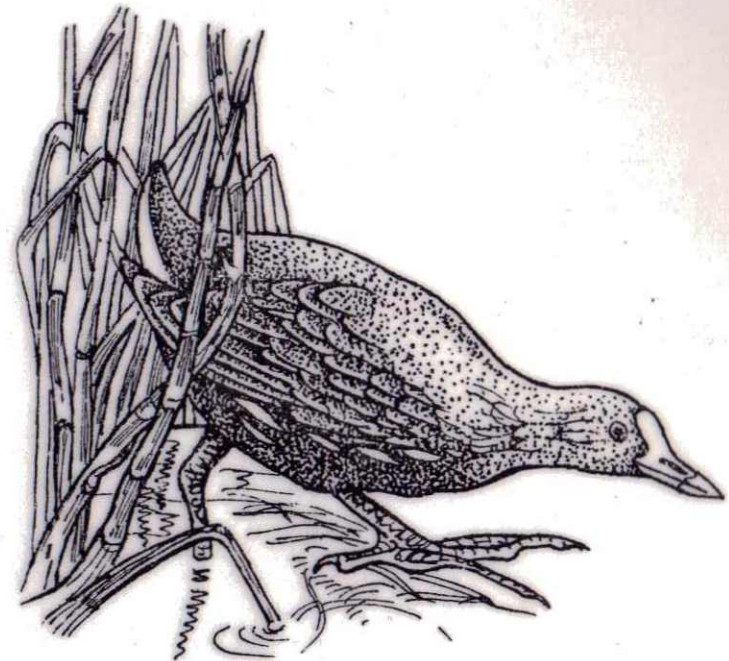
1. Millers Pond supports a diverse fish fauna typical of small urban ponds, and includes two ornamental fish species.
2. Growth rates of all species are slow, and the population of rudd in particular are stunted.
3. The fish stocks would benefit from being reduced. Fish growth rates and individual size should improve, and the potential for parasite spread will be reduced.
4. The pond supports a small but locally important recreational fishery. In light of the poor supply of public fishing in the City, fishing in this pond should not be prevented.

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Cover Photographs

Front Cover
Back Cover

Pair of Mute Swans
Ornamental Lake

by Julian Cremona
by Harry Loxton

